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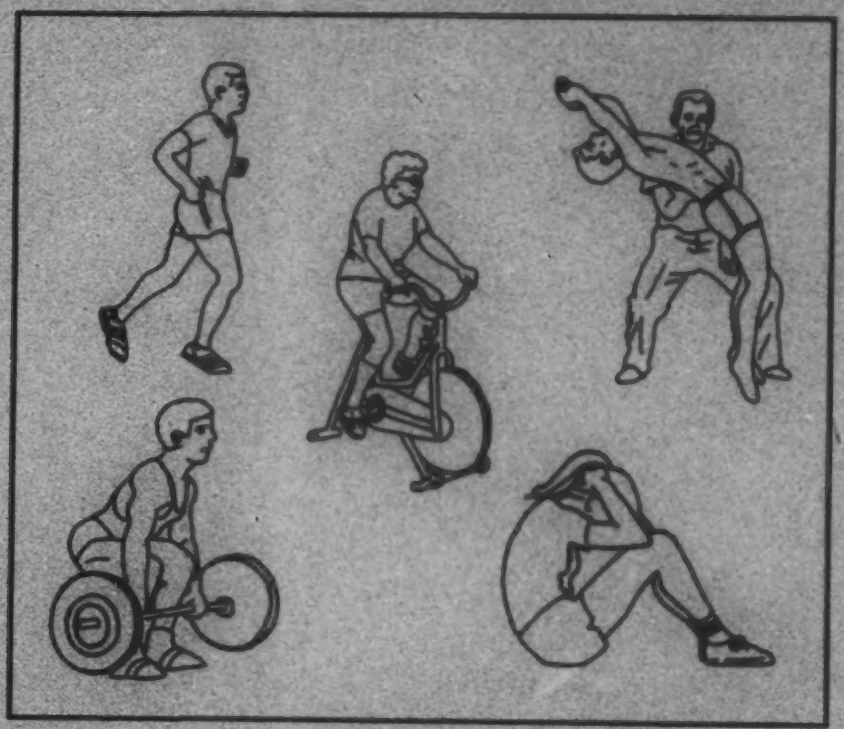
ABSTRACT

The materials in this packet are for a course designed to provide individualized classroom study for a specific area of clinical rotation--sports medicine. The instructor's manual describes the learning objectives together with a list of reference materials that should be provided for completion of the student worksheets, and lists suggested educational outcomes. Various forms suitable for duplication are provided, including a student's weekly clinical rotation report, the clinical supervisor's evaluation sheet, and a case study record intended to make students aware of the arrangement and content of a patient's chart. The guide also contains answer keys for the worksheets, a checklist of activities correlated to procedures, and procedure sheets. A final section outlines additional assignments for each chapter in sports medicine that uses higher level thinking skills. The student study packet provides learning objectives, worksheet reference materials, information on the use of the packet, and a clinical rotation activity checklist that helps students and clinical staff determine experiences each student should have at a rotation station and is designed to document each student's progress. Thirty-four worksheets are provided on the following topics: safety devices, safety and body mechanics, disease prevention, emergency situations, career opportunities, crutch training, crutch gaits, assisting with a prosthesis, hydrotherapy, heat treatments, cryotherapy, therapeutic massage, exercise, range-of-motion exercises, exercise programs, cardiac rehabilitation, heart, vital signs, evaluating fitness through performance, planning an exercise program, training attitudes and fitness programs, diet and body weight, training and diets, prevention of injury, screening tests, basic concepts of wellness and fitness, bill of rights for the athlete, caring for supplies and the work area, records and plans, plans leading to discharge, organization and general plan of the body, skeletal system, muscles, and nervous system. Names and addresses of four career resources conclude the packet. (YLB)

SPORTS MEDICINE

ED 363 717

Instructor's Packet



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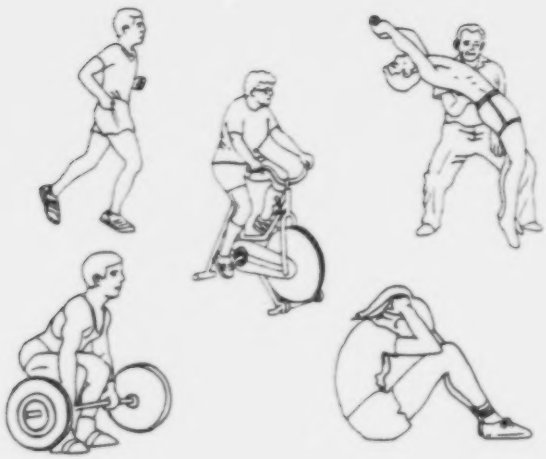

CLINICAL ROTATION

Instructor's Packet

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Notes for the Instructor

The purpose of the student study packet is to provide individualized classroom study for a specific area of clinical rotation. As the student gains knowledge through the classroom activities, he/she will integrate this knowledge with the clinical rotation to enhance the learning experience.

The learning objectives for the rotation are given first, together with a list of reference materials that should be provided for completion of the Worksheets.

A Student's Weekly Clinical Rotation Report is provided for duplication. The form should be completed by the student for each week of rotation and returned to the instructor.

The Clinical Supervisor's Evaluation Sheet should be filled out by the supervisor of each department or service at the end of a rotation. The sheet is used to evaluate a student's performance and progress.

The Clinical Rotation Activity Checklist is presented in the student study packet. There are no essential elements for sports medicine. Suggested educational outcomes are included in the Instructor's Packet. The Activity Checklist is meant to be helpful to students and clinical staff in determining the experiences each student should have at a rotation station. The list is also designed to document each student's progress. The list should accompany the student to each rotation, should be updated with each observation or skill practice, and should finally be signed by the area supervisor before submission to the health occupations teacher at the end of the rotation.

A Case Study Record is provided. The purpose of this form is to make students aware of the arrangement and content of a patient's chart. The instructor may decide whether it is appropriate for the rotation.

Answer keys for the Worksheets are provided. The instructor should select Worksheets from the student study packet appropriate to the clinical facility. The number of Worksheets selected is determined by the length of the rotation and will vary from program to program.

The next section contains Procedure Sheets. A chart shows the relationship of the procedures to the activities. Procedures preciously published are referenced. Some procedures are outlined in the publications *Sports Medicine, Student Manual*, and others in *Physical Therapy Aide, Student Manual.*

A section "For More Advanced Study" has been added. Additional assignments for each chapter in Sports Medicine have been developed to employ higher level thinking skills requiring the ability to research and organize. Suggested answers are provided. This section may be used for concentrated study in Clinical Rotation, Health Occupations I or II.

No tests are provided. Because the length and content of a rotation varies greatly from one health care institution to another, no standard for testing exists. Test questions are available in the publications used as references. Instructors may select and devise a test from these.

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Rotation Objectives

Sports Medicine

The student involved in the sports medicine rotation will be allowed to observe and assist in the performance of as many departmental functions as possible. The student will apply knowledge gained from assignments to enhance the learning experience. The student will have an opportunity to relate sports medicine to inpatient and outpatient care and the overall fitness of the general population. The student will be able to make an informed decision when considering a career choice in sports medicine, kinesiology, exercise physiology, recreation therapy, aerobics, or athletic trainer.

The student will be under the direct supervision of a licensed physical therapist or sports medicine professional at all times.

The student will be provided opportunities to—

1. locate devices used for safety, emergencies, and protection in sports medicine;
2. observe levels of training and responsibilities for the staff;
3. understand the anatomical and mechanical aspects of kinesiology in assessment of functional deficits;
4. observe and/or assist with evaluation and establishment of exercise programs;
5. observe and/or assist with operation of equipment and execution of exercise programs; and
6. clean and maintain equipment and supplies.

Reference Materials

The student will be provided the following reference materials for use in completing the Worksheets for sports medicine.

- Fair, Helena J. *Sports Medicine*. Austin: EIMC, The University of Texas at Austin, 1992.
- Pape, Mark W. *Physical Therapy Aide*. Austin: EIMC, The University of Texas at Austin, 1990.

Suggested Educational Outcomes

Sports Medicine

At the end of this course of study, the student will understand the concepts associated with the occupation of sports medicine and be able to—

(1) describe both the anatomical and mechanical aspects of kinesiology;

(2) evaluate fitness using measuring devices;

(3) select and apply supportive equipment to protect against injury;

(4) modify diet to gain or lose weight;

(5) provide fluids to maintain water balance in the body;

(6) identify a modality and describe its use in rehabilitation;

(7) maintain supplies for emergency use;

(8) keep records as required; and

(9) demonstrate a knowledge of psychological techniques for improving health and adapting behavior.

Student's Weekly Clinical Rotation Report

This form must be filled out on the Monday after a week of rotation. It should be given to your instructor during class.

Rotation Assignment	Date
Student Name	Supervisor

1. Summarize your responsibilities and duties this week.

2. Describe new information or skills that you learned.

3. Record the best thing that happened at the clinic this week.

4. Describe the worst thing that happened at the clinic this week.

5. If #4 was a mistake, how was it corrected?

6. This week was (circle one)

   GOOD FAIR BAD DISASTROUS

   Why?

Clinical Supervisor's Evaluation Sheet

Clinical Supervisor _____ Rotation Area _____

Student Name _____ Date _____

Please evaluate the student in the following areas. Use the following scale:

1 = Excellent
2 = Satisfactory
3 = Poor
4 = Unsatisfactory
NA = Not Applicable

	Score	Comments	Initials
1. Participation			
2. Attitude toward work			
3. Behavior to patients			
greeting			
smile			
nonverbal communication			
helpful attitude			
4. Dress and appearance			
5. Punctuality			
6. Observes rules of department			

Additional Comments:

Case Study Record

Directions: Select one patient from this rotation. Obtain permission to examine the patient's chart. Complete this form with accurate data. Do not use a name. Write on the back or use additional paper, if necessary.

Sex_____ Age_____

Chief complaint on admission:

Present illness:

Physical findings (include important positive and negative findings):

Laboratory tests ordered:

Radiologic studies:

Cardiopulmonary studies:

Therapies ordered:

Medications:

Diagnosis:

Prognosis:

Suggested by Ruth Smith R.N., Plano East High School, Plano, Texas

Answers to Worksheets

Worksheet 1: Safety Devices

Answers to questions 1, 2, 4, and 6 should list exact locations or indicate that the equipment is not available.

3. Procedure should be described, including placing a Code Red call to the telephone operator.

Answers to questions 5 and 7 should be "yes" or "no."

8. List will vary with the facility.

Worksheet 2: Safety and Body Mechanics

1. a. position of the body and the relationship of its parts to one another
   b. maintaining an object in a steady position so it does not tip or fall
   c. geometric center of an object
   d. imaginary line passing through center of gravity and base of support
2. feet of a person, base on which objects rest
3. rehabilitation after brain injury or amputation, cerebral palsy
4. efficient use of the body during an activity
5. Size up the load. Get help if load is too large.
   Stand with feet shoulder width apart and with one foot slightly ahead of the other.
   Squat down by bending knees. Do not bend at the waist.
   Bring load close to body.
   Use a firm grip with both hands.
   Tighten abdominal muscles, and lift load using leg muscles.

Worksheet 3: Disease Prevention

1. by the hands, clothes, bandages, equipment
2. practice of reducing the number and preventing the spread of germs
3. wash the hands
4. names of soap will vary, germicidal
5. a. loosen bacteria
   b. kill bacteria
   c. wash bacteria away
   d. prevent contamination of clothes by sink
   e. prevent dirtying of clean hands by the faucet
6. acquired immune deficiency syndrome
7. gloves, masks, goggles, rescue breathing protective equipment
8. Change clothes as soon as possible. Wash exposed skin with germicidal soap and disinfect with alcohol solution or hydrogen peroxide.
9. Clean with a solution of one part bleach to ten parts water. Wear gloves when cleaning.

Worksheet 4: Emergency Situations

1. immediate, temporary care given a victim of a sudden illness or accident
2. Check to be sure it is safe to approach victim.
   Attempt to rouse victim.

Check airway, and be sure victim is breathing. If not, check airway for obstruction.
Check for pulse or heartbeat. If heart has stopped, start CPR.
Call for help.
Check for severe bleeding.

3. ability to respond to surroundings and stimuli
4. *primary assessment:* environment, airway, breathing, circulation, level of consciousness, chief complaint if victim is conscious, trauma, poisoning, burns, pain or inability to move a joint, shock
   secondary assessment: examination from head to toe to discover wounds, pain, or lack of sensation in any area
5. a. carotid
   b. 15 compressions to two breaths
   c. 1 1/2 to 2 inches
   d. 4 cycles per minute
6. a. to dislodge a foreign body from the trachea
   b. Wrap arms around victim. Make a fist with one hand. Place thumb side of fist against victim's abdomen just above navel. Grasp fist with other hand.
   c. Give quick upward thrust. Repeat until object is expelled or victim becomes unconscious.
7. Apply direct pressure and elevate, place pressure bandage and wrapping, use pressure points, use tourniquet as last resort in major trauma.
8. prevent motion in joint and surrounding tissues
9. A sling supports the weight of the arm. A swathe binds the arm to the body and immobilizes it.
10. to immobilize and transport victims with neck and back injuries
11. by log-rolling or being lifted as one unit
12. Wash from the nose outward. Cover both eyes to minimize eye movement.
13. pale, cyanotic, with moist, clammy skin; pupils dilated and eyes appear to stare
14. Keep victim lying down and covered. Elevate feet and lower body about 6 inches unless there are fractures or a heart attack.
15. heat cramps, heat exhaustion, heatstroke
16. heatstroke
17. get to shade, cool, and give liquids
18. frostbite, hypothermia
19. Get to shelter and warm with blankets, clothing and warm drink. Immerse frozen parts in warm water. Do not rub or apply any heating device.

Worksheet 5: Career Opportunities

1. An *aide* is trained for a short period of time, usually on-the-job. A *technician* has studied about 2 years at a community college and has an associate degree. A *technologist* has studied for 4 years, has laboratory or clinical experience, and has a bachelor's degree.
2. doctor of sports medicine, physiatrist
3. therapy
4. They administer treatments and test to determine the response of the patient to treatment.
5. a. doctor of medicine, 3-4 years of college, 3-4 years of medical school

b. doctor of osteopathy, 3-4 years of college, 3-4 years of medical school
c. physical therapist, 4 years of college
d. physical therapist assistant, 2 years of college
e. occupational therapist, 4 years of college, 6 months of field experience
f. licensed occupational therapist, 4 years of college, 6 months of field experience
g. licensed occupational therapist assistant, 2 years of college
h. registered respiratory therapist, 2 years of college
i. certified respiratory therapy technician, 1 year of college
j. registered massage therapist, 300 clock hours

6. a. people with artificial limbs, braces, in wheelchairs, or partially paralyzed
   b. physically or mentally handicapped
   c. those recovering from physical or mental illness, accidents, injuries, and handicaps
7. schools, colleges, community recreational programs, professional athletics
8. work with sports injuries, give first aid, use modalities, wrap, use special gear, supervise diet
9. health clubs, fitness centers
10. determine a person's muscular strength, flexibility, endurance, and cardiovascular fitness and design exercise programs
11. Answers will vary.
12. Answers should be evaluated by the instructor for completeness and accuracy.

Worksheet 6: Crutch Training

1. axillary crutches, Canadian or Lofstrand crutches
2. wood or aluminum
3. They do not have good hand function.
4. Measure from 2 inches below anterior fold of axilla down to a point 6 inches lateral to the heel.
5. The elbows should be bent at a 30-degree angle, and the wrist should be extended.
6. Shoulders are pushed upward or rest heavily on axillary pads, crutches slip from under arms, elbows bend more than 30 degrees.
7. *To sit in a chair*—Back up until the backs of the legs touch the chair. Move both crutches to one hand to hold both handgrips. Grip armrest with other hand, and sit down.
   To get out of a chair—Move to edge of seat. Hold both crutches by handgrips with one hand. Place feet under edge of chair. Place free hand on armrest. Push upward to stand, and place one crutch under each arm.
8. Put one hand on stair railing and both crutches under other arm, holding both by handgrips. Place strong foot on step. Push on rail and handgrips, and bring affected leg and crutches up to the same step. Repeat.
9. Put one hand on stair railing and both crutches under the other arm, holding both by handgrips. Place crutches on step below. Using the strong leg for control, lower affected leg to step below. Bring down the strong leg and crutches. Repeat.

Worksheet 7: Crutch Gaits

1. Swing-through gait
   Rhythm: crutches, swing, crutches, swing
2. Four-point gait
   Rhythm: left crutch, right foot, right crutch, left foot (and repeat)
3. Three-point gait
   Rhythm: crutches, step, crutches, step
4. Two-point gait
   Rhythm: left crutch, right foot, right crutch, left foot

Worksheet 8: Assisting with a Prosthesis

1. preparation of person, presentation of activity, tryout performance, follow-up
2. a. to teach changing positions, how to move while sitting, balance, moving affected limbs
   b. prepare for gait, pelvic control, how to stand with braces, control of an artificial limb, balance, coordination
   c. turning, walking, going in and out of doors, getting up from chairs, falling
3. activity to be performed and physical requirements
   psychological effect of equipment on patient
   materials and design of device
   importance of equipment in total rehabilitation of patient
4. upper body
5. shoulder flexion, elbow flexion, wrist extension
6. inconspicuous device, near normal way of doing things, cosmetically acceptable, easy to handle, should not be noisy, easy to modify, useful for more than one purpose, one disability or one age group; patient needs to agree to purchase and construction of equipment
7. weight, strength, elasticity, life expectancy
8. KAFO—knee-ankle-foot orthosis
   AFO—ankle-foot orthosis
9. hip disarticulation prosthesis, knee disarticulation prosthesis, below knee prosthesis with SACH foot, arm prosthesis
10. patient told what to expect, muscles are strengthened
11. Sit up in bed. Move to edge of bed. Legs dangle, and feet touch floor. If patient complains of dizziness, the patient is helped to lie down again.

Worksheet 9: Hydrotherapy

1. external application of water for treatment purposes
2. metal tub filled with water and agitated; treats extremities
3. 98°-115°F
4. 20-30 minutes
5. hydrocollator
6. Use with 6-8 layers of padding.
7. An extremity has alternate immersion in hot and cold water.
8. causes constriction and dilation of blood vessels, increasing blood flow
9. bath of a mixture of oil and wax heated to 125°-130°F
10. open wounds

11. Wash the body part. Check for open wounds. Dip part into the bath several times. Wrap in plastic wrap or waxed paper, and cover with a towel. Leave for about 20 minutes.
12. to make skin soft and pliable, to prepare for massage
13. Therapists can get into pool with patients, treat more patients, used for patient exercise, offer exercise in water. (Students may suggest others.)
14. cost of building, cost of cleaning and maintenance, time required for maintenance, liability for dangers associated with water
15. Answers will vary.

Worksheet 10: Heat Treatments

1. to produce a temperature change, cause vasodilitation, increase circulation, relieve pain and tightness of muscles, relieve stiffness in joints, stimulate metabolism and growth of new cells and tissues
2. arthritis, bursitis, myositis, tenosynovitis, tendonitis
3. infrared
4. moving because this changes the location of heating and could lead to injury
5. superficial heat—5 mm below skin; deep heat—3-5 cm beneath skin
6. ultrasound
7. to ensure that sound waves penetrate the skin with a minimum of deflection
8. arthritis, bursitis, myositis, fibositis

Worksheet 11: Cryotherapy and Electrotherapy

1. cold therapy
2. vasoconstriction, decrease in blood flow, metabolic activity, and local tissue temperature
3. ice bags, cold-water baths, cold compresses, cold packs
4. to reduce fever, swelling, pain, and inflammation
5. continuous or direct electrical current used in treatment
6. muscle strengthening, reeducation, pain control
7. no fraying or defects in insulation, plugs in good condition, good contact
8. The current is started at low intensity and increased. It is gradually decreased at the end of the treatment.
9. a tracing of muscle contractions; the electrical potential generated by a muscle movement is picked up by electrodes, amplified, and recorded on a graphic chart
10. analyzed for defects in movement and conduction of neural impulses along muscles; to determine whether a muscle or group of muscles contracted during a movement

Worksheet 12: Therapeutic Massage

1. systematic stroking applied to the body by a trained professional
2. in a comfortable position with the affected part supported
3. stroking—light stroking of skin to create reflex effects; kneading—rolling and squeezing skin and underlying tissues; friction—using thumb, fingers, and palm to apply deep pressure to muscles and tissues
4. vibration, percussion
5. position

6. tapping with fingertips, beating with ulnar side of hands, clapping with palms, beating with clenched fist
7. to relieve pain, to relax muscle tension, to improve circulation, to reduce swelling, to stretch and break up adhesions, reduce stress, clear the lungs
8. acute inflammation, skin diseases or rashes, thrombophlebitis
9. Answers will vary.
10. lotion
11. hand flat, fingers together
12. 12 to 15 strokes per minute

Worksheet 13: Types of Exercise

1. Someone else performs the exercise for the person; to prevent contractures.
2. The person does the exercise alone; to maintain or increase muscle strength, develop endurance, provide coordination, maintain or increase range-of-motion, develop speed.
3. Patient has to have assistance to begin or complete a movement; prevent contractures.
4. A muscle or set of muscles is contracted and released without moving the joint; to prevent atrophy of muscle.
5. repetitive contraction against resistance; increase strength
6. contracting a muscle without joint motion; to maintain and improve strength
7. may be active or passive, may use weights to stretch muscles; achieve normal range-of-motion
8. all types of exercise; prepare person for activities of daily living

Worksheet 14: Range-of-Motion Exercises

1. back extension
2. back flexion
3. plantar flexion
4. dorsiflexion
5. adduction
6. abduction
7. extension
8. extension
9. hyperextension
10. supination
11. pronation
12. neck flexion
13. neck extension
14. eversion
15. inversion

Worksheet 15: Exercise Programs

1. the study of human movement using principles of both anatomy and mechanics
2. active, passive
3. static, kinetic
4. lack of movement
5. relating to motion
6. isometric exercise
7. those against resistance and those without resistance
8. forced, nonforced
9. forced goes beyond voluntary range-of-motion
10. vigorous, the whole body must be moved, heartbeat raised, sustained for at least 12 minutes

11. jogging, brisk walking, continuous dancing, swimming, bicycling, cross-country skiing
12. This program organizes selected activities into a sequence or circuit. The person does one activity for a set period of time or for a set number of repetitions and then goes to the next station to perform another type of exercise.
13. public parks, recreation areas, sports centers, gymnasiums
14. can build one, two, or all three areas
15. decrease time required to complete circuit, to increase the work done at each station, or both
16. a period of heavy exercise alternating with a period of rest or light activity
17. to allow the body to recover energy stores of the muscles during the rest interval

Worksheet 16: Cardiac Rehabilitation

1. a physical examination
2. medical history of you and your family, vital signs, physical examination, breast and pelvic exam for females, blood tests, urinalysis, electrocardiograms (resting and in motion), proctoscopic exam
3. cardiovascular-respiratory, muscular strength, muscular endurance, flexibility, body composition
4. treadmill—can be programmed for different speeds and inclinations
   ergometer—bicyclelike device that can be programmed for different loads
5. hydrostatic weighing technique—a person is totally immersed in a tank of water for weighing
   calipers—a measuring device used to determine skin thickness from a pinched fold of skin
6. to indicate obesity, important to control weight with cardiac problems, to lessen strain on heart, to indicate fitness (no definite answer in Student's Manual)
7. motivation, postural improvement and maintenance, flexibility, balance, aerobic fitness
8. a. thickening of the walls of the arteries with a loss in wall elasticity
   b. inflammation of the lining of a vein that is accompanied by clotting of the blood in the vein
   c. bleeding within the brain
   d. sudden obstruction of a blood vessel
   e. solid mass that attaches to the wall of a vessel and may obstruct a blood vessel or cavity of the heart
   f. high blood pressure
   g. low blood pressure

Worksheet 17: The Heart

1. right pulmonary artery
2. superior vena cava
3. right atrium
4. right ventricle
5. inferior vena cava
6. septum
7. left ventricle
8. left atrium
9. left pulmonary veins
10. left pulmonary artery
11. pulmonary trunk
12. ascending aorta
13. arch of aorta

Worksheet 18: Vital Signs

1. assemble equipment, wash hands
2. 15 minutes
3. stem end
4. 3 minutes
5. radial artery
6. one minute
7. volume, rhythm
8. The thermometer is placed in the patient's mouth. Pulse and respiration rates are determined during the three minutes required for recording temperature.
9. watching the patient's chest as it rises and falls
10. Placing a hand on your own chest, feeling the rise and fall of the chest, and counting for one minute.
11. The earplugs are cleaned with cotton and disinfectant.
12. The pulse in the brachial artery in the inner side of the elbow is located. The bell or diaphragm of the stethoscope is place over the artery.
13. (a) 76, (b) 130
14. to allow blood to flow again
15. necessary to record vital signs and not to depend on the memory
16. T—98.6 –1°F, 35°C
    P—70 to 72 beats per minute for men, 78 to 82 beats per minute for women
    R—15–20 breaths /minute
    BP—100–140 / 60–90 mmHg

Worksheet 19: Evaluating Fitness Through Performance

1. a. range-of-motion
   b. electromyogram
2. (a) anatomic position, (b) fundamental standing position, (c) fundamental standing position
3. double-armed goniometer, elgon, Leighton flexometer, film
4. observation and palpation as the muscle contracts; to superficial muscles
5. use muscle stimulator, electromyography, movie film, still camera, videotape, computers
6. a tracing of muscular contractions
7. light streaks to show patterns of movement, multiple exposures showing multiple images on one picture
8. collect and analyze data, simulation, graphics

Worksheet 20: Planning an Exercise Program

1. type of exercise, intensity, duration, frequency of performance
2. to develop a specific function, to change body composition, to develop more than one type of fitness, improve all areas
3. by heart rate when engaged in aerobic activities
4. at the beginning 60% to 70% of heart function; for active adults 70% to 80% of heart function
5. 220–21 = 199 maximum heart rate
   199 x .80 = 159 beats per minute training heart rate
   159 ÷ 6 = 26.5 beats per 10 seconds training heart rate

6. maximal volume of oxygen consumption
7. endurance
8. *progression*—begin slowly and gradually increase the amount or frequency of exercise done
   repetition—repeating the number of repetitions in a set or repeating the number of sets
   overload—as the body responds to increased demands increase time, distance, or number of exercises

Worksheet 21: Training Attitudes and Fitness Programs

1. training and competition
2. boredom, loss of interest
3. Choose definite goals, devise a method to measure progress, have variety in the program, change lifestyle, measure success, recognize success.
4. a pledge to do something
5. interest, time, companionship
6. diet, exercise
7. inactivity
8. setting deadlines to meet, building muscles
9. Identify problem, discuss problem with someone, change pace, do physical exercise.
10. There is no reason to advocate different programs of training based solely on the sex of the athlete.
11. return of information to the place of origin
12. a. *Proprioception* is the form of internal feedback that originates in the nerves of the hand to determine an awareness of weight, position, and relationship of objects to the body. It also makes the body aware of changes in equilibrium. These are necessary for the body to know how to act.
    b. *External feedback* involves the senses and is used to judge distance and timing.
    c. *Biofeedback* is used to train one's own autonomic nervous system.
13. In *training*, after a person has experienced the motor skill, he or she conducts mental practice by reviewing the skill in the mind. Before *competition*, the athlete mentally runs through the performance.
14. Denial, grief and depression, anger and hostility, and acceptance
15. Plan an exercise program. Set goals. Reevaluate.

Worksheet 22: Diet and Body Weight

1. unit of heat; the amount of heat needed to raise the temperature of one gram of water one degree Centigrade
2. 15
3. Answers will vary. Student should multiply his/her body weight by 15.
4. 15%
5. *milk and milk products group*—milk, butter, custards, ice cream, cream soups, cheese, cottage cheese
   meat group—meat, fish poultry, eggs, dried beans, peas, nuts
   vegetable and fruit group—all fruits and vegetable
   bread and cereal group—bread, cereals, pastas, noodles
6. carbohydrates, fats, proteins, vitamins, minerals, water

7. a. simple
   b. complex
   c. simple
   d. complex
   e. complex
   f. both simple and complex
8. a. unsaturated
   b. unsaturated
   c. saturated
   d. saturated
   e. unsaturated
9. a. incomplete
   b. complete
   c. complete
   d. incomplete
10. vitamins, minerals
11. into water-soluble and fat-soluble
12. chemicals from the earth
13. Fiber is the nondigestible portion of grains, fruits, and vegetables.
14. *Food additives* enhance flavor, add color, prevent spoilage, or change the product in some way. *Nutritional supplements* are vitamins and minerals added for nutritional value.

Worksheet 23: Training and Diets

1. a. 58% to 60%
   b. 30% to 20%
   c. 12% to 20%
2. The week before competition, an athlete trains moderately and reduces carbohydrate intake to a low level for the first 3–4 days. During the last 3 days, the athlete consumes a high carbohydrate diet and reduces the amount of training. During the four hours preceding competition, the food eaten must be moderate in carbohydrates and low in fat, protein, and fiber.
3. a. Extreme quick-loss diets and liquid high protein diets deplete potassium, cause ketosis, and disturb electrolyte balance.
   b. Rapid weight loss depletes potassium, causes ketosis, and disturbs electrolyte balance.
   c. Can cause diarrhea, electrolyte imbalance, and ketosis.
   d. Boring and nutritionally unbalanced
4. Increase the amount of complex carbohydrates and natural sugars in diet.
   Reduce amount of fats.
   Reduce the amount of cholesterol.
   Reduce the amount of refined and other processed sugars.
   Reduce the amount of salt used.
5. Persons who are *overweight* tire easily, may have backaches, are more susceptible to some diseases, and have more difficulty doing physical work. Those who are *underweight* tend to be more irritable and restless, and have less physical endurance.

6. Someone with anorexia nervosa views his or her body as overweight although the body may be gaunt from starvation. These people are usually adolescents and most often female.
7. Someone with bulimia appears normal. This person stuffs with large amounts of food and then forces regurgitation, fasts, or uses laxatives.

Worksheet 24: Prevention of Injury

1. the participant
2. a. increase ability of muscles to contract and relax, stimulate blood flow to carry more oxygen to cells, increase metabolism
   b. increase body heat but not to fatigue
   c. for the activity to be performed
3. Distribute impact over as large an area as possible and over as great a period of time as possible.
4. skeletal development, overall body structure, psychological readiness to learn skills, age
5. activities should be done in moderation, less frequently, and for shorter periods of time, no isometric exercise
6. someone who keeps watch for a participant
7. prevent injury
8. every 500 miles or about every 3-4 months
9. restrict motion in a joint, support bones and their surrounding tissues, ease stress on tendons and ligaments, support muscles
10. The stirrups are a series of three to four overlapping tapes which begin inside the leg and extend down and across the sole and up the outside of the leg.
11. Answers will vary according to the sport selected. Consult Student's Manual.

Worksheet 25: Screening Tests

1. cardiovascular-respiratory endurance, muscular strength, muscular endurance, flexibility, body composition
2. the ability of the circulatory and respiratory systems to meet the demands of physical activity
3. treadmill, ergometer
4. one and one-half mile test, three-minute step test
5. A person runs or walks one and one-half miles as fast as possible. Anyone who covers the distance in 12 minutes is in good shape.
6. Use a bench or chair which is 12 inches tall. Step up with one foot, and bring the other beside it. Stand. Step down with the first foot, and bring the other down. This is one cycle. The rate of stepping is about one cycle every two seconds. Stop after three minutes. Sit down. Find the pulse. Wait one minute. Count pulse for 50–60 seconds. A rate of 50 to 60 beats per minute indicates fitness.
7. hand-grip manometer or dynamometer
8. *Sit-ups* test the abdominal area, with 35–45 in one minute indicating fitness.
   Pull-ups measure upper body endurance by how many are done. There is no time limit. Three to eight are good.
   Flexed-arm hang measures upper body endurance. Score is based on length of hang. Fifteen seconds is good.
9. flexibility

10. hydrostatic weighing, calipers, pinch test
11. Pinch a fold of skin on the back of the upper arm between the shoulder and elbow or below the waist on the hipbone. If the skin fold is more than one-half to one inch, there is too much adipose tissue.

Worksheet 26: Basic Concepts of Wellness and Fitness

1. a. a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity
   b. being physically and mentally healthy and sound
   c. a condition of daily life in which we feel good, are alert, maintain homeostasis, and have the energy to perform the activities of daily living
2. World Health Organization (WHO) of the United Nations
3. physical, mental, social
4. physical illness caused by a mental or emotional disorder
5. homeostasis
6. In the sedentary lifestyle, a person is inactive or does most activities sitting down. An active person moves around to perform activities.
7. (1) Meet your daily dietary needs from the four food groups.
   (2) Participate regularly in vigorous, sustained exercise using all body parts.
   (3) Secure proper medical preventive services and care in emergencies.
   (4) Help to prevent dental disease through proper personal and professional care.
   (5) Choose healthful play and recreational activities.
   (6) Develop a sense of belonging and contributing through satisfying work.
   (7) Plan for adequate sleep and rest.
8. to maintain health and fitness, meet social needs, impart a sense of well-being, build endurance, aid in recovery after illness
9. sports in which people participate during their leisure time
10. personal fitness, developing a sports skill, treatment of injuries, developing equipment and practices to prevent injury

Worksheet 27: The Bill of Rights for the Athlete

1. Committee on the Medical Aspects of Sports, American Medical Association
2. to play fair, to give his/her best, to keep in training, to conduct herself/himself with credit to the sport and the school
3. good coaching, good officiating, good equipment and facilities, good health supervision
4. Good coaching protects with careful conditioning, technical instruction, and discouragement of tactics which increase hazard.
5. preseason history and medical examination, a physician present at games and practice sessions, and medical control of the health aspects of athletics

Worksheet 28: Caring for Supplies and the Work Area

1. where it will not tilt or roll
2. that water has been drained
3. should be the name of a supervisor
4. Answers will vary.
5. wiped with a damp cloth, scrubbed with a brush to remove caked materials, cleaned away from the body and from cleanest area to dirtiest

Worksheet 29: Records and Plans

1. record of a physical examination by a physician
2. general practitioner, family doctor
3. sports medicine practitioner, physiatrist
4. medical history showing vital signs and results of doctor's examination (doctor's notes), laboratory reports, EKG
5. evaluation of fitness
6. EKG, oxygen consumption test, and records of other tests, record of percentage of body fat to lean, range-of-motion tests, myogram, motion pictures, still pictures, videotapes, VO_2 max reading
7. to plan an exercise program
8. to improve performance
9. in a computer
10. Answers will vary with the facility. The instructor should check for accuracy and completeness.

Worksheet 30: Plans Leading to Discharge

1. previous medical data; patient's social, mental, and emotional status; physical condition
2. interviewing and testing patient
3. The problems are identified. The therapist prioritizes them. Goals are set. Specific treatments are planned to accomplish each goal.
4. Notes are added each time the patient has treatments.
5. If it is not working, another plan can be developed and implemented.
6. The patient has achieved goals.
7. summary of patient's accomplishments and abilities at time treatment ended; recommendations for future therapy or treatment
8. written in ink, factual, meaningful, accurate, without errors, no scratching out or correction fluids
9. Draw one line through the error, correct, and add initials to verify.
10. patient confidentiality

Worksheet 31: Organization and General Plan of the Body

Figure I:
- A. cranial cavity
- B. vertebrae
- C. thoracic cavity
- D. diaphragm
- E. spinal cavity
- F. abdominal cavity
- G. pelvic cavity

Figure II:
- A. cranial
- B. posterior or dorsal
- C. anterior or ventral
- D. frontal plane
- E. caudal

Figure III: A. sagittal plane
B. transverse plane
C. proximal end of lower leg
D. lateral surface
E. medial surface
F. distal end of lower leg

Worksheet 32: The Skeletal System

1. cranium
2. maxilla
3. mandible
4. clavicle
5. sternum
6. rib
7. pelvic bone/innominate bone
8. pubic bone
9. carpals
10. metacarpals
11. phalanges
12. patella
13. tarsals
14. metatarsals
15. phalanges
16. skull
17. cervical vertebrae
18. scapula
19. thoracic vertebrae
20. lumbar vertebrae
21. ilium
22. sacrum
23. coccyx
24. ischium
25. humerus
26. radius
27. ulna
28. femur
29. fibula
30. tibia

Worksheet 33: The Muscles

1. sternocleidomastoid
2. deltoid
3. pectoralis major
4. intercostals
5. internal oblique
6. rectus abdominis
7. sartorius
8. quadriceps femoris
9. tibialis anterior
10. gastrocnemius
11. external oblique
12. biceps brachii
13. trapezius
14. deltoid
15. latissimus dorsi
16. gastrocnemius
17. tendon of Achilles
18. trapezius
19. triceps brachii
20. gluteus maximus

Worksheet 34: The Nervous System

1. cerebrum
2. cerebellum
3. brain stem/medulla oblongata
4. musculocutaneous
5. radial
6. median
7. ulnar
8. femoral
9. anterior tibial
10. posterior tibial
11. brachial plexus
12. lumbar plexus
13. sacral plexus
14. obdurator
15. sciatic

Procedure Sheets

Checklist of Activities Correlated to Procedures

Sports Medicine

No essential elements exist for the curriculum of students engaged in the study of sports medicine. The Checklist of Activities has been used as a basis for determining the appropriate procedures to include in this clinical rotation packet.

Activities	*Procedures*
1. Using safety guidelines for a. safety devices b. body mechanics c. universal precautions d. emergency equipment	Procedure Sheet 1: Rules When Lifting Heavy Objects Procedure Sheet 2: Handwashing *Sports Medicine*, Unit 11 Information Sheet 1: Order of Patient Assessment Information Sheet 2: One-Rescuer CPR: Adult Information Sheet 3: Obstructed Airway: Conscious Adult Information Sheet 4: Obstructed Airway: Unconscious Adult
2. Recognizing levels of training and hierarchy in department	None
3. Providing crutch training	*Physical Therapy Aide*, pp. 54–58
4. Assisting with prosthesis for disabled athletes	*Physical Therapy Aide*, p. 38, Wheelchair to Parallel Bars
5. Administering hydrotherapy a. whirlpool b. Hubbard tank c. swimming pool	Procedure Sheet 3: Giving a Whirlpool Bath
6. Giving heat treatments a. infrared radiation b. hot and cold packs c. paraffin baths d. contrast baths e. ultrasound	Procedure Sheet 4: Using a Heat Lamp Procedure Sheet 5: Applying Heat with Hydrocollator Packs *Sports Medicine*, Unit 9 Procedure Sheet 6: Giving a Contrast Bath *Sports Medicine*, Unit 9
7. Using cryotherapy	Procedure Sheet 7: Cryotherapy
8. Using electrotherapy	Procedure Sheet 8: Checklist for the Use of Direct Current in Electrotherapy

9. Applying therapeutic massage	Procedure Sheet 9: Procedure for a Back Rub
10. Assisting with exercises	
a. passive	
b. progressive resistive	
c. isometric	
d. stretching	
e. range-of-motion	*Sports Medicine*, Unit 3, Figure 5
f. mat	
g. parallel bars	See procedure for 4 above
11. Providing cardiac rehabilitation	*Sports Medicine*, Unit 6
12. Taking and recording vital signs	*Sports Medicine*, Unit 11 Information Sheet 5: Taking a Temperature Information Sheet 6: Counting a Pulse Information Sheet 7: Counting Respiration Rate Information Sheet 8: Taking and Recording Blood Pressure
13. Assessing extent of functional deficits	*Sports Medicine*, Unit 10
a. setting up treatment plan	"Positive Training Attitudes" Unit 3, "Computing Maximum Heart Rate and Training Heart Rate"
b. reviewing plan	Unit 8, "Computing Calories to Maintain Weight"
14. Encouraging use of proper footwear and protective gear	*Sports Medicine*, Unit 7 Information Sheet: "Wrapping an Ankle"
15. Providing preventive screening of athletes	*Sports Medicine*, Unit 6, "Three-Minute Step Test" and "Muscle Strength and Endurance"
a. ruling out medical problems	
b. establishing functional limitation	"Pinch Test"
16. Arranging supplies and linens	Procedure Sheet 10: Maintaining Sports Medicine Department
17. Cleaning area and equipment	Procedure Sheet 11: Cleaning and Disinfecting the Work Area

18. Assisting with records	*Physical Therapy Aide*, Unit 5, "The Physical Therapy Record," pp. 25–30
19. Planning for discharge	See 18 above.

Procedure Sheet 1
Sports Medicine

Rules When Lifting Heavy Objects

Equipment: Boxes of supplies

Procedure:

1. Size up the load. Never lift more than you feel comfortable lifting. When in doubt, get help.
2. Stand with your feet shoulder width apart or with one foot slightly in front of the other.
3. Squat down by bending your knees. Do not bend at the waist, as this adds stress to the back.
4. Bring the load close to your body.
5. Use a firm grip. Use both hands.
6. Tighten your abdominal muscles, and then lift the load using your leg muscles.
7. Do not twist the body, but turn it as a unit.
8. Avoid pulling heavy objects. Instead, push or roll them to the desired location.

Body mechanics of lifting

Body mechanics used for carrying objects.

Procedure Sheet 2
Sports Medicine

Handwashing

Step 1: Don't let uniform touch sink. Use paper towel to turn on *warm* water.

Step 2: Wet hands, holding hands lower than wrists, and apply soap. Use liquid soap, if possible.

Step 3: Use strong, rubbing movements to loosen bacteria from hands. Wash between fingers and thumbs.

Step 4: Rinse well, with hands lower than wrists. Inspect hands. If necessary, repeat the washing. Dry hands and arms well, and use paper towel to turn off water.

Procedure Sheet 3
Sports Medicine

Giving a Whirlpool Bath

Equipment: Whirlpool bath, towel

Procedure:

1. Fill tub with water. Adjust water temperature with thermostatic valve to 98°-115°F.
2. Adjust the intensity of agitation.
3. Place patient in a comfortable position beside bath in a chair or on special seat.
4. Immerse limb for treatment in the bath.
5. Duration of treatment is usually 20 to 30 minutes.

Procedure Sheet 4
Sports Medicine

Using a Heat Lamp

Equipment: Heat lamp, sheets or towels for drapes

Procedure:

1. Wash your hands.
2. Provide privacy.
3. Explain treatment and the safety precautions. Caution patient not to adjust lamp without help.
4. Position lamp about 12 to 18 inches away from the treatment area.
5. Be sure that patient is draped to prevent exposure.
6. Check patient after 3 to 5 minutes to make sure the lamp is not too close, especially for the very young, the elderly, or those with irritated skin.
7. Leave the lamp in place for time ordered. Time may vary from 10 to 15 minutes to 20 to 30 minutes.
8. Ask the patient to report any pain or burning.

Procedure Sheet 5
Sports Medicine

Applying Heat with Hydrocollator Packs

Equipment: Heated hydrocollator packs (165°F), tongs, towels or other padding

Procedure:

1. Wash your hands.
2. Explain procedure to the patient.
3. Remove hydrocollator packs from the heating unit using the tongs.
4. Lay packs on towels or other padding, and fold this around the pack.
5. Use 6 to 8 layers of padding between the pack and skin to prevent burning. Bony areas may need more padding. Place pack on patient. Do not allow the patient to lie on the pack.
6. Check patient every 5 minutes to be sure that no burning has occurred.
7. Duration of the treatment is usually from 20 to 25 minutes.

Procedure Sheet 6
Sports Medicine

Giving a Contrast Bath

Equipment: Two baths with one container at a temperature of 105° to 110°F and the other at 60° to 65°F, towel

Procedure:

1. Wash your hands.
2. Explain the procedure to the patient.
3. Place the part to be treated in the hot water bath for 10 minutes.
4. Transfer the part immediately to the cold water bath for 1 minute. Transfer body part to hot water for 1 minute and back to the cold bath for 1 minute. This is a 3-minute cycle.
5. Return the body part to the heated water to begin another cycle. This 10-minute heat immersion always precedes the 3-minute contrast cycle.
6. These cycles are repeated for the prescribed length of time.

Procedure Sheet 7
Sports Medicine

Cryotherapy

Equipment: Frozen commercial pack, ice chunks in a plastic bag, towels or other padding, basin of water with ice chunks, compresses

Procedure:

1. Wash your hands.
2. Greet the patient and explain the procedure you plan to use:
   a. Frozen commercial pack
      (1) Wrap the pack in a towel or cloth.
      (2) Place on treatment area for time specified.
   b. Ice chunks in a plastic bag
      (1) Be sure that bag is sealed to prevent dripping. Wrap in padding.
      (2) Place in treatment area for time specified.
   c. Cold, moist compresses
      (1) Place compresses in the basin containing the water and ice chunks.
      (2) Wring compresses from the water, and apply to the treatment area.
      (3) Change compresses frequently as the body heat warms them.
3. Remove pack or compresses at end of treatment period.
4. Dry the area with a towel.
5. Check for overchilling.

Procedure Sheet 8
Sports Medicine

Checklist for the Use of Direct Current in Electrotherapy

1. Is equipment in good condition with no fraying or defects in insulation?
2. Are electrode plugs in good condition, and do they make good contact?
3. Is the patient situated away from any metal item that could be contacted?
4. Has the patient been instructed as to the sensation felt during the treatment?
5. Was the skin cleaned before treatment?
6. Were the electrodes the right size and positioned in the right places?
7. Had the electrodes, requiring water, been soaked?
8. Was the current started at low intensity and increased?
9. Was the current gradually decreased at the end of the treatment?
10. Were patient complaints checked, such as extra tingling or stinging sensations, as to the cause, and was the complaint remedied?

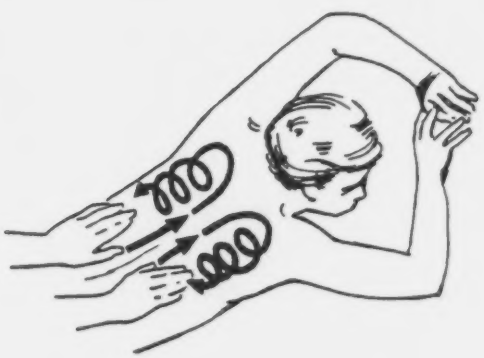
Procedure Sheet 9
Sports Medicine

Giving a Back Rub

Equipment : Lotion

Procedure:

1. Wash your hands.
2. Place the patient in a prone position, and tell what you plan to do. The patient should be bared to the waist. Provide for privacy.
3. Face the patient's head. Keep your hands flat and fingers together.
4. Use long, firm, gentle strokes, and apply even pressure to the person's entire back. Each movement should go in the same direction.
5. Begin low at the back, and move up the center toward the neck, across the shoulders, and down the sides to the lower back. Repeat 4 to 6 times.
6. Repeat in the same direction, but add circular strokes from the shoulders down the sides. Repeat 4 to 6 times.
7. Return to the long, firm strokes. Continue these for 4 to 6 minutes. The usual rate is about 12 to 15 strokes per minute. Try to maintain an even rhythm.
8. Apply lotion to the hands before the rub begins and as needed so the hands will move smoothly.



Direction for Applying Strokes

Procedure Sheet 10
Sports Medicine

Maintaining Sports Medicine Department

Equipment: None

Procedure: Check the list below to determine whether the sports medicine department is in good order.

1. Are all appliances returned to their places?
2. Are supplies stored neatly on the proper shelf?
3. Are linens put away?
4. Are cabinet doors closed?
5. Are exercise mats stored?
6. Have tabletops, work areas, and desks been cleared?
7. Were wastebaskets emptied?
8. Is movable equipment stored where it will not tilt or roll?
9. Has water been drained from hydrotherapy equipment?
10. Have all baths been cleaned and disinfected?
11. Are all paper supplies available for use or stored in proper place?
12. Has electrical equipment been turned off or disconnected?
13. Has any equipment needing repair been reported to the supervisor?

Procedure Sheet 11
Sports Medicine

Cleaning and Disinfecting the Work Area

Equipment: Trash bags, detergent and water, cleaning rags, commercial sink cleaner brushes, 3% Lysol disinfectant, gloves

Procedure:

1. Place trash and disposable items in bags, and remove to designated area for disposal.

2. Strip all linens and bag in accordance with local policy. Place in designated area.

3. Any contaminated equipment should be placed in special covered containers for sterilization or for incineration.

4. Drain all hydrotherapy equipment for cleaning.

5. Prepare a detergent washing solution according to manufacturer's directions for dampening the cleaning cloths.

6. Using damp cleaning cloths, wipe countertops. If materials have been spilled, use a scrub brush to loosen and remove caked materials. Wipe up spills.

7. Wipe countertops with a cloth dampened with tap water to remove the detergent.

8. Use a long-handled brush to swab the countertops with the 3% Lysol solution, or put on gloves and wipe with a cloth dampened in the disinfectant. Clean away from your body. In general, clean from the cleanest area to the dirtiest. This prevents carrying dirt into the cleaned area.

9. Wipe all equipment with a damp cloth, followed by a dry cloth to dry.

10. Wipe off furniture with damp cloth, followed by a dry polishing cloth.

11. If walls must be cleaned, use cloths dampened by detergent solution; follow with a cloth dampened in tap water.

12. Clean sink with commercial cleaner using a scrub brush or cloth. Rinse well. May be disinfected with 3% Lysol solution. Rinse well.

Projects for More Advanced Study

Unit 1 / Basic Concepts of Wellness and Fitness

- Talk with your high school coach about local policy for providing medical supervision during sports training and competitions. Write a report.

- Conduct research to compile a list of the leisure sports activities available in the area where you live. Use local telephone directories. Consult with the city parks and recreation department. Talk with people in the athletics department at your school.
  a. List health clubs available to members.
  b. List organized league and team sports available to students outside of the public school.
  c. List organized league and team sports available to adults in the community.
  d. List any professional sports teams in your area.

- Compile a list of fifteen or more items for evaluation in selecting the right facility in an area with several health clubs or fitness centers. Consult with the health and physical education faculty at your school and the personnel at the facility where you observe. Your list must include factors appropriate for all age groups and both sexes. (For example, is child care available?)

Unit 2 / Career Opportunities

- Use a local telephone directory to locate and list the names and addresses of the following health care professionals: doctor of sports medicine, physiatrist, doctor of osteopathy, physical therapist, occupational therapist, respiratory therapist, massage therapist, rehabilitation counselor, athletic trainer, and a fitness trainer. Check with your instructor for the names of those who work in a hospital and have no private listing. If the profession is not represented in your area, write NA.

- List all of the staff in the sports medicine facility where you observe. Talk with the staff to learn where each received his/her training and how many years of training each has. List all degrees and credentialing each has.

Unit 3 / Introduction to Anatomy and Physiology

- Make a drawing of the human body showing the body cavities. Specify where the organs are located by listing the names of the organ in the cavity. Be sure to add the retroperitoneal space.

- Determine the actual chemical composition of the body and the percentage of each element contained in the body. Present your data in some form of graph.

- Determine the four major types of tissue and the subtypes under each. Write a paper or prepare a table to list these, and give the location of each tissue.

- Write a paper which includes a discussion of the general purposes of membranes. Describe the various types of membranes and the subtypes of these. Give the functions of the subtypes of membranes.

Unit 4 / Body Systems

- Use books on anatomy, physiology, biology, health, and kinesiology as references for these projects. Instructor and student must determine acceptable length for these papers. All of these are topics for written reports unless specified as drawings or a chart.

- Make a series of drawings to show all of the bones of the skull, both internal and external. Label the bones and the foramina.

- Explain how muscles contract. List and explain types of contraction.

- Make two drawings showing the anterior and posterior aspects of either an entire arm or a leg. Label all muscles in the limb.

- Present information on the cranial nerves, giving the number, location, and function of each. Determine why they are called cranial nerves. Describe disorders of these nerves.

- Develop either a paper or chart to show the functions housed in each lobe of the cerebral cortex. Explain how these areas are known to interrelate.

- Prepare a series of drawings of neurons. Label the parts of one neuron. Show different types of neurons classified by the processes extending from the cell and by direction of impulse.

- Cite factors affecting the heart rate. Explain how the cardiac cycle is regulated and how an impulse travels through the heart.

Unit 5 / Kinesiology

- Design a circuit training program for yourself. Use facilities at your school, in a nearby public park, or at the place where you observe.

- Design an interval training program for yourself using equipment at your school, home, or the facility where you work or observe.

Unit 6 / Assessment and Evaluation of Fitness

- Give yourself the 1 1/2 mile test for aerobic fitness. Use a measured track at a public school or park. Prepare a short report showing place, date, and results of testing.

- Ask a friend to help you conduct the three-minute step test. Use steps in the bleachers or a bench. The steps must be 12 inches tall. Test yourself and your friend. Prepare a short report showing place, date, and test results for both of you.

- Test your endurance using situps and pullups or a flexed-arm hang. You may wish to ask a friend to time your tests. Prepare a report.

- Make a series of drawings to show how the hydrostatic weighing technique is used. Label the drawings to explain the technique.

Unit 7 / Prevention of Disease and Injury

- Work with an athletic trainer or coach to learn techniques for preparing protective wrappings for body areas, other than the ankle wrap shown in Unit 7. In conference with your instructor, select an appropriate time to demonstrate one or more techniques, determine how many areas to wrap, and what arrangements will be made for providing supplies. Wrapping demonstrations may include any of the following areas: shoulder, elbow, wrist, fingers (more than one wrap), ribs, knee (basic and/or figure eight), shin splint taping, ankle, tendon of Achilles, and arches of feet.

Unit 8 / Nutrition

- List foods you ate for breakfast, lunch, and dinner one day. Suggest six food choices for each meal which could lead to a more healthful lifestyle. List any snacks you consumed. Suggest ten food choices for more healthful between-meal snacks.

- Keep a food diary of what you eat for one week. Using a standard chart, record your intake of calories. Total the daily intake and then the weekly intake. Conclude whether the intake maintains your ideal weight. Submit your food diary with any recommendations for improvement to your instructor.

- Make a chart showing all the vitamins which have been identified. State how each is used by the body, and give examples of foods in which each vitamin is found.

Unit 9 / Modalities for Rehabilitation

- List all the modalities in the place where you observe. Arrange them into groups. Use the same divisions as the unit, such as cryotherapy, exercise, hydrotherapy, etc.

- Draw a floor plan of the place where you observe. Locate and label all modalities available for use in treatment.

- Talk with a physical therapist, trainer, or kinesiologist where you observe about a specific sports injury which interests you. Discuss the type of modalities he/she would recommend for such an injury. Work out the four basic steps to be followed in presenting an exercise plan to a person with this type of injury. Write a paper listing the four steps and what you would say and do in each step.

Unit 10 / Psychology Applied to Sports and Wellness

- Select a specific motor skill in a sport. Present a step-by-step demonstration of the skill to your class followed by a demonstration of how to conduct mental practice of the skill.

- Research and write a paper about the use of biofeedback in other areas besides sports, such as control of headaches, pain, or blood pressure, and describe the process for biofeedback training.

Unit 11 / Emergency Situations

- Information Sheet 1, "Order for Patient Assessment," is a summary, especially the section on secondary assessment. Rewrite this sheet to include a more detailed procedure for a patient assessment. Use *Standard First Aid*, by the American Red Cross, or *Emergency Care and Transportation*, from the American Academy of Orthopaedic Surgeons.

- Consult with the coach or trainer at the school you attend to determine what emergency equipment is available in the athletic department. Prepare a list of this equipment. Talk with the school nurse to determine what emergency equipment he or she has available.

- If there is a "crash cart" in the place where you observe, identify and list equipment available on the cart. Be sure to talk with your supervisor before starting this project. Determine whether other emergency equipment is available in sports medicine.

Suggestions for Answers to Projects for More Advanced Study

Unit 1 / Basic Concepts of Wellness and Fitness

The instructor will evaluate these activities for completeness and accuracy.

Unit 2 / Career Opportunities

Answers will vary with the locality and facility.

Unit 3 / Introduction to Anatomy and Physiology

The drawing should show the following cavities and organs:
cranial—brain, pituitary gland, pineal body
spinal—spinal cord
thoracic—heart, aorta, lungs, bronchi, esophagus
abdominal—stomach, small and large intestines, liver, gallbladder, pancreas, spleen
retroperitoneal space—kidneys, adrenal glands, ureters
pelvic—urethra, urinary bladder, rectum
male—seminal vesicles, prostate gland, ejaculatory ducts
female—ovaries, Fallopian tubes, uterus

oxygen–65%, carbon–18%, hydrogen–10%, nitrogen–3%, calcium–2%, phosphorus–1%, trace elements-1%

Epithelial, muscular, connective, and nervous are the major tissue types. Subtypes of these will vary with the reference used.

Purposes of membranes: cover a surface, partition, line hollow organs and body cavities, anchor organs, secrete lubricants
Types of membranes: epithelial (mucous and serous), cutaneous, synovial
Types of serous membranes: plurae, pericordium, peritoneum

Unit 4 / Body Systems

Use books on anatomy, physiology, biology, health, and kinesiology as references for these projects. Each instructor must determine acceptable length of the papers and evaluate each individually.

Unit 5 / Kinesiology

These projects must be evaluated by the instructor as appropriate for the individual student.

Unit 6 / Assessment and Evaluation of Fitness

Test results will vary with the individual tested in the first three projects.

The last project should show the apparatus and how the individual is submerged for weighing.

Unit 7 / Prevention of Disease and Injury

These protective wrapping procedures must be studied outside of class time. A demonstration can be conducted at the discretion of the instructor. If demonstrations are not possible, the instructor may arrange to accept a series of drawings as an alternative.

Unit 8 / Nutrition

The first two projects will vary with the student and must be evaluated by the instructor individually.

The last project should have a list of vitamins A, B_1, B_6, B_{12}, C, D, E, and K together with examples of foods containing each vitamin and how each is used by the body.

Unit 9 / Modalities for Rehabilitation

These three projects will vary with the facility used for observation and must be evaluated for completeness by the local instructor.

Unit 10 / Psychology Applied to Sports and Wellness

The demonstration is at the discretion of the instructor. It and the paper on feedback must be evaluated individually by the instructor.

Unit 11 / Emergency Situations

The new Information Sheet should be similar to Information Sheet 1 but be more extensive in listings and in describing areas for evaluation.

The lists prepared in the other two projects will vary with the facility. These should be evaluated by the instructor.

Career Resources

Sports Medicine

Alliance for Health, Physical Education, and Recreation
1201 16th Street
Washington, D.C. 20036

American College of Sports Medicine
P.O. Box 1440
Indianapolis, Indiana 46206-1440

National Athletic Trainers Association
P.O. Box 1865
Greenville, North Caroline 27834

Rehabilitation Counseling Association
Cary Building B-110
8136 Old Keene Mill Road
Springfield, Virginia 22152

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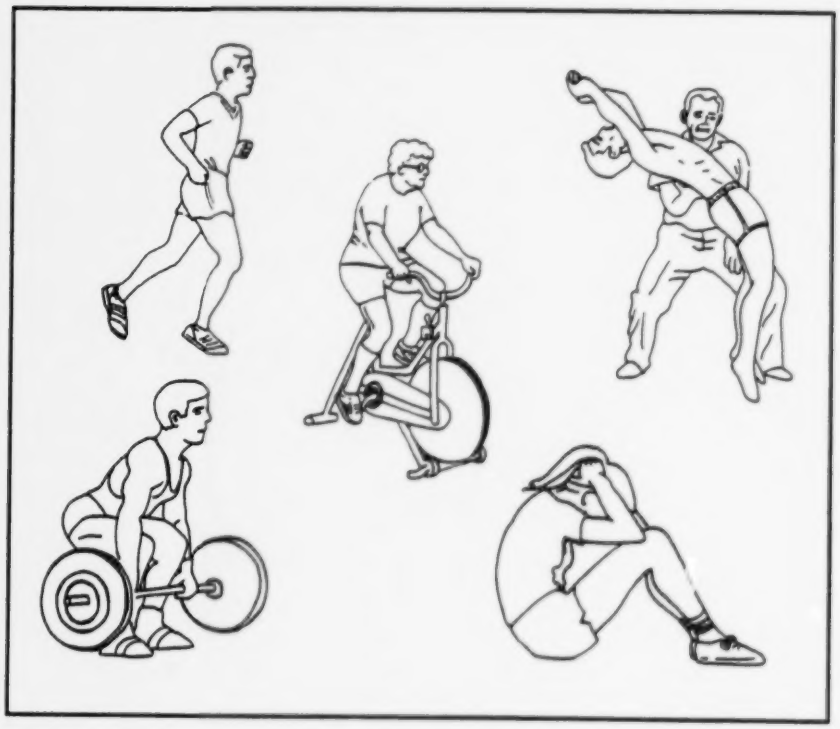
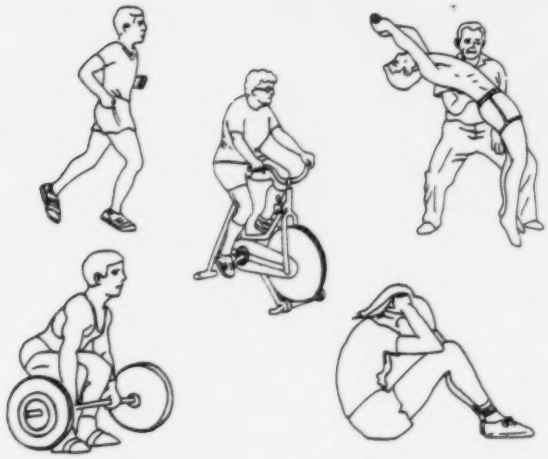
SPORTS MEDICINE

Student Study Packet



CLINICAL ROTATION

SPORTS MEDICINE



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COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Office for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964: EXECUTIVE ORDERS 11246 and 11375; TITLE IX 1973 EDUCATION AMENDMENTS: REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED IN 1974.

It is the policy of the Texas Education Agency to comply fully with the nondiscrimination provisions of all federal and state laws and regulation by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any programs of activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency makes positive efforts to employ and advance in employment all protected groups.

Rotation Objectives

Sports Medicine

The student involved in the sports medicine rotation will be allowed to observe and assist in the performance of as many departmental functions as possible. The student will apply knowledge gained from assignments to enhance the learning experience. The student will have an opportunity to relate sports medicine to inpatient and outpatient care and the overall fitness of the general population. The student will be able to make an informed decision when considering a career choice in sports medicine, kinesiology, exercise physiology, recreation therapy, aerobics, or athletic trainer.

The student will be under the direct supervision of a licensed physical therapist or sports medicine professional at all times.

The student will be provided opportunities to—

1. locate devices used for safety, emergencies, and protection in sports medicine;
2. observe levels of training and responsibilities for the staff;
3. understand the anatomical and mechanical aspects of kinesiology in assessment of functional deficits;
4. observe and/or assist with evaluation and establishment of exercise programs;
5. observe and/or assist with operation of equipment and execution of exercise programs; and
6. clean and maintain equipment and supplies.

Reference Materials

The student will be provided the following reference materials for use in completing the Worksheets for sports medicine.

- Fair, Helena J. *Sports Medicine*. Austin: EIMC, The University of Texas at Austin, 1992.
- Pape, Mark W. *Physical Therapy Aide*. Austin: EIMC, The University of Texas at Austin, 1990.

How to Use This Study Packet

Sports Medicine

READ the reference material. You will need the publications listed under reference materials.

COMPLETE the sports medicine Worksheets related to the reference material. Some answers will deal specifically with procedures used at the clinical rotation site. These answers must be supplied by your clinical supervisor or through your observations.

REVIEW the Procedure Sheets. Studying these techniques during classtime will prepare you for observation at your clinical rotation facility. Not all procedures will be available in every facility. Do not expect to assist with every procedure. Some techniques are restricted to licensed personnel.

CHECK your answers, and turn in the Worksheets for grading by your instructor.

COMPLETE the Clinical Rotation Activity Checklist by the conclusion of the rotation. This checklist should accompany you each time you report to your assigned rotation department to assure an accurate, dated record of your observations. Ask your clinical supervisor to sign it. Return the completed form to your health occupations teacher.

TEST your knowledge of sports medicine by taking the test provided by your instructor.

Name _____ Supervisor _____
Date of Rotation From _____ To _____

Clinical Rotation Activity Checklist
Sports Medicine

This activity checklist is intended as a guideline for the clinical area. Other activities may be added at the end. The list should be completed, signed by the supervisor, and returned to the health occupations instructor at the end of the rotation.

Activities	*Observed*	*Aided*	*Date*
1. Using safety guidelines for			
a. safety devices	_____	_____	_____
b. body mechanics	_____	_____	_____
c. universal precautions	_____	_____	_____
d. emergency equipment	_____	_____	_____
2. Recognizing levels of training and hierarchy in department	_____	_____	_____
3. Providing crutch training	_____	_____	_____
4. Assisting with prosthesis for disabled athletes	_____	_____	_____
5. Administering hydrotherapy			
a. whirlpool	_____	_____	_____
b. Hubbard tank	_____	_____	_____
c. swimming pool	_____	_____	_____
6. Giving heat treatments			
a. infrared radiation	_____	_____	_____
b. hot and cold packs	_____	_____	_____
c. paraffin baths	_____	_____	_____
d. contrast baths	_____	_____	_____
e. ultrasound	_____	_____	_____
7. Using cryotherapy	_____	_____	_____
8. Using electrotherapy	_____	_____	_____
9. Applying therapeutic massage	_____	_____	_____
10. Assisting with exercises	_____	_____	_____
a. passive	_____	_____	_____
b. progressive resistive	_____	_____	_____

c. isometric	____	____	____
d. stretching	____	____	____
e. range-of-motion	____	____	____
f. mat	____	____	____
g. parallel bars	____	____	____
11. Providing cardiac rehabilitation	____	____	____
12. Taking and recording vital signs	____	____	____
13. Assessing extent of functional deficits			
a. setting up treatment plan	____	____	____
b. reviewing plan	____	____	____
14. Encouraging the use of proper footwear and protective gear	____	____	____
15. Providing preventive screening of athletes			
a. ruling out medical problems	____	____	____
b. establishing functional limitations	____	____	____
16. Arranging supplies and linens	____	____	____
17. Cleaning area and equipment	____	____	____
18. Assisting with records	____	____	____
19. Planning for discharge	____	____	____
20. Additional activities			
_____	____	____	____
_____	____	____	____
_____	____	____	____

Worksheet 1
Sports Medicine

Safety Devices

OBJECTIVE: To locate safety devices available for use in a sports medicine department.

DIRECTIONS: Answer these questions concerning the place where you observe. Consult your supervisor if you have trouble locating the equipment.

1. Where are the fire extinguishers located in the sports medicine department?
2. Where are the fire doors?
3. What should be done if a fire occurs in the department?
4. Is there a crash cart in the department? If so, where is it located?
5. In case of a disaster, will the sports medicine department serve a special function? If so, what is it?
6. Tell where the following items are found in the department:
   a. gloves
   b. masks
   c. gowns
7. Are sinks operated by hand? Are there any sinks that can be operated by the foot or elbow or automatically?
8. List other safety equipment and devices present in this department.

Worksheet 2
Sports Medicine

Safety and Body Mechanics

OBJECTIVE: To use the body effectively during all activities

REFERENCES: *Sports Medicine*, Unit 5, "Alignment and Balance"
Physical Therapy Aide, Unit 2, "Body Mechanics"
Procedure Sheet 1: "Rules When Lifting Heavy Objects"

DIRECTIONS: Use the indicated sections to answer the questions.

1. Define these terms:
   a. posture

   b. balance

   c. center of gravity

   d. line of gravity

2. What is a base of support?

3. What conditions require special training to teach the body about balance?

4. What is meant by the term *body mechanics*?

5. Discuss the rules of body mechanics which apply to lifting objects or helping patients.

Worksheet 3
Sports Medicine

Disease Prevention

OBJECTIVE: To use methods for preventing the spread of disease

REFERENCES: *Sports Medicine*, Unit 7 and Unit 11
Procedure Sheet 2: "Handwashing"

DIRECTIONS: Use material found in both units to answer the questions.

1. Describe how disease is spread.
2. What is asepsis?
3. What is the easiest way to prevent the spread of disease?
4. What brand of soap is used where you work or observe? Why is it used?
5. Determine the purpose of these items in handwashing.
   a. friction
   b. germicidal soap
   c. flowing water
   d. not leaning against the sink
   e. using a paper towel to cut off water
6. What words does the abbreviation AIDS represent?
7. List four pieces of protective gear used by persons giving first aid.
8. If no protective clothing is available, what procedure should the first aid provider follow?
9. Recommend a procedure for cleaning permanent equipment.

Worksheet 4
Sports Medicine

Emergency Situations

OBJECTIVE: To respond adequately to emergency situations

REFERENCE: *Sports Medicine*, Unit 11

DIRECTIONS: Answer these questions.

1. What is first aid?
2. List and describe the first actions to be taken in an emergency.
3. What does level of consciousness indicate?
4. What areas are involved in primary assessment? In secondary assessment?
5. Determine these points to remember concerning CPR:
   a. name of the artery used to check blood circulation
   b. distance sternum is moved downward during compression
   c. ratio of compression to breaths
   d. number of cycles completed per minute
6. Describe the Heimlich procedure as to the following:
   a. purpose
   b. placement of hands
   c. procedure
7. List steps to be followed in controlling bleeding from a wound.
8. What is the first aid treatment for a broken bone?
9. How are slings and swathes used?
10. For what are backboards used?
11. How is a victim placed on a backboard?
12. Describe how to wash and bandage an injured eye.
13. How does someone in shock appear?
14. Describe the first aid measures used to treat shock.

15. What three emergency conditions develop in connection with activities in the hot summer sun?

16. Which condition is life-threatening?

17. What is the general treatment for heat-related conditions?

18. What two emergency conditions develop in connection with activities in cold winter weather?

19. What is the general treatment for conditions related to cold weather?

Worksheet 5
Sports Medicine

Career Opportunities

OBJECTIVE: To identify titles, education, and functions of personnel working in sports medicine and its associated fields

REFERENCE: *Sports Medicine*, Unit 2

DIRECTIONS: Answer these questions.

1. Differentiate between an aide, a technician, and a technologist.

2. Name two types of medical specialists found in sports medicine facilities.

3. What is the treatment of a pathologic condition or disease called?

4. Explain what the duties of a therapist are.

5. Write out the meanings of these initials, and state the number of years and type of training required for each occupation.
   a. M.D.

   b. O.D.

   c. O.T.

   d. P.T.A.

   e. O.T.

   f. L.O.T.

   g. L.O.T.A

   h. R.R.T

   i. C.R.T.T.

   j. R.M.T.

6. What type of patients or condition do the following therapists treat?
   a. corrective therapist

   b. recreational therapist

   c. rehabilitation counselor

7. Where do athletic trainers work?

8. Explain the duties of trainers.

9. Where do fitness instructors work?

10. Explain the duties of fitness instructors.

11. List the name of the head of the sports medicine department where you observe. Place all of the proper initials after this person's name.

12. List the names of all the workers in the sports medicine department where you observe. Place the proper initials after each person's name. If a person has received on-the-job training, write the person's occupation instead of the identifying initials.

Worksheet 6
Sports Medicine

Crutch Training

OBJECTIVE: To recognize types of crutches and how to maneuver using crutches

REFERENCE: *Physical Therapy Aide*, Unit 5

DIRECTIONS: Use the last section of the unit which deals with types of crutches and gaits to answer these questions.

1. List two major types of crutches.
2. Of what two materials are crutches made?
3. Why are platform crutches prescribed for some patients?
4. Describe how to measure someone for crutches who is standing.
5. How should the arms and wrists be situated on the crutches?
6. Determine what signs to look for when crutches do not fit properly.
7. Explain how to get in and out of a chair with crutches.
8. Describe how to go up stairs with crutches.
9. Describe how to go down stairs with crutches.

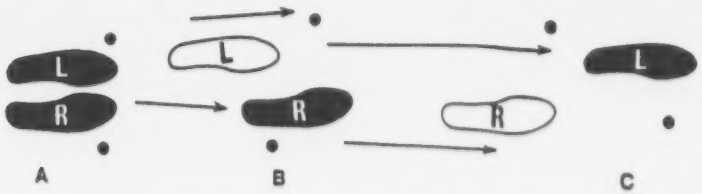
Worksheet 7
Sports Medicine

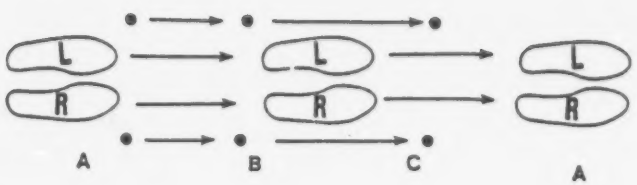
Crutch Gaits

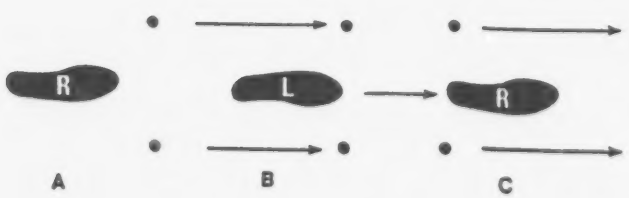
OBJECTIVE: To recognize crutch gaits

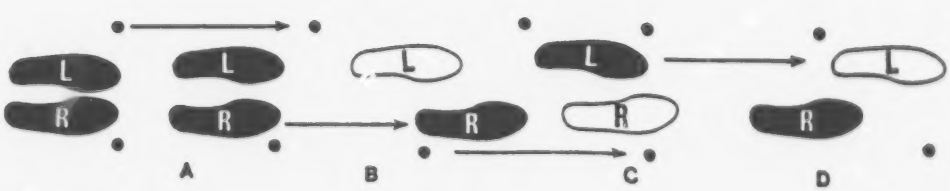
REFERENCE: *Physical Therapy Aide*, Unit 5

DIRECTIONS: Use figure 12 and material at the end of the unit to identify the gait and describe the rhythm.









Worksheet 8
Sports Medicine

Assisting with a Prosthesis

OBJECTIVE: To be able to describe the process involved in selection, acceptance, and use of a prosthesis by an individual

REFERENCES: *Sports Medicine*, Unit 9
Physical Therapy Aide, Unit 5

DIRECTIONS: Use *Sports Medicine* as a reference for questions 1 and 2, and *Physical Therapy Aide* as a reference for questions 3-11.

1. List four basic steps to be followed in presenting a new activity to an injured person.

2. Describe the purposes of these types of exercise.

   a. mat exercises

   b. parallel bar exercises

   c. crutch exercises

3. Discuss considerations used in selecting equipment for a patient.

4. Which portion of the body is critical for performance of the activities of daily living?

5. Name the three key upper body motions involved in ADL.

6. What factors should be considered by the rehabilitation team in order to help a patient accept equipment?

7. Devices are constructed of several different materials. Discuss factors to consider in selecting the material for construction.

8. Refer to figure 2. List two types of braces shown. Tell what these abbreviations mean.

9. Refer to figure 7. List the four types of prosthetic devices shown.

10. Before gait-training activities begin, what pre-activities are carried out?

11. Outline the process to prepare a patient for standing.

Worksheet 9
Sports Medicine

Hydrotherapy

OBJECTIVE: To describe methods of treatment using different modalities of hydrotherapy

REFERENCES: *Sports Medicine*, Unit 9
Procedure Sheet 3: "Giving a Whirlpool Bath"
Procedure Sheet 5: "Applying Heat with Hydrocollator Packs"
Procedure Sheet 6: "Giving a Contrast Bath"

DIRECTIONS: Write answers to the questions.

1. What is hydrotherapy?
2. Describe a whirlpool bath and what body parts it is used to treat.
3. The temperature of the whirlpool bath should be _____ .
4. Treatment time for a whirlpool bath is _____ .
5. The most commonly used hot pack is the _____ .
6. How is burning of the skin prevented when using hot packs?
7. Describe the technique for using a contrast bath.
8. Explain the effect on the body of a contrast bath.
9. Describe a paraffin bath.
10. What skin conditions contraindicate a paraffin bath?
11. Outline the procedure for giving a paraffin bath.
12. Explain the reasons for giving a paraffin bath.
13. What advantages do you see in a facility with a swimming pool?
14. What are the main disadvantages with a swimming pool?
15. List the hydrotherapy devices present in the facility where you observe.

Worksheet 10
Sports Medicine

Heat Treatments

OBJECTIVE: To describe methods of applying heat for treatment

REFERENCES: *Sports Medicine*, Unit 9
Procedure Sheet 4: "Using a Heat Lamp"

DIRECTIONS: Answer the questions.

1. For what reasons is therapeutic heat used?
2. Cite conditions or diseases for which therapeutic heat is used.
3. What type of radiation is most commonly used for superficial heat?
4. For what should patients be cautioned when using infrared lamps? Why is this?
5. Heat treatments are applied at two depths. Differentiate between these by name and depth.
6. Name the most common method for applying deep heat.
7. State why a coupling medium or gel is used with ultrasound.
8. For what conditions is ultrasound used?

Worksheet 11
Sports Medicine

Cryotherapy and Electrotherapy

OBJECTIVE: To describe methods of treatment using cryotherapy and electrotherapy

REFERENCES: *Sports Medicine*, Unit 9 and Unit 5
Procedure Sheet 7: "Cryotherapy"
Procedure Sheet 8: "Checklist for the Use of Direct Current in Electrotherapy"

DIRECTIONS: Use Unit 9 to answer questions 1–6. Use Procedure Sheet 8 for answers to questions 7 and 8. Use the section "Evaluating Motor Skills" in Unit 5 to answer questions 9 and 10.

1. What is cryotherapy?

2. Describe body changes produced by cold therapy.

3. How is cold therapy applied?

4. Why is cryotherapy used?

5. Describe electrotherapy.

6. Why is electrotherapy used?

7. List precautions to observe in connection with electrotherapy equipment.

8. Describe how the intensity of the current varies during treatment.

9. What is an electromyogram, and how is it recorded?

10. How are myograms used in studies?

Worksheet 12
Sports Medicine

Therapeutic Massage

OBJECTIVE: To recognize the purposes of massage and the strokes employed

REFERENCES: *Sports Medicine*, Unit 9
Procedure Sheet 9: "Giving a Back Rub"

DIRECTIONS: Use the section on "Massage" to answer the questions.

1. What is therapeutic massage?
2. How should the patient be situated for treatment?
3. List and describe the three major types of massage.
4. List two massage techniques used to treat lung disorders.
5. What, besides massage, aids in the treatment of lung disorders?
6. Describe four types of percussion.
7. Explain the purposes of massage.
8. For what conditions is massage contraindicated?
9. In the facility where you observe, for what conditions have you seen massage done?
10. What may be applied to facilitate massage and back rubs?
11. Describe the position of the hands during a back rub.
12. What is the usual rate of stroking for back rubs?

Worksheet 13
Sports Medicine

Types of Exercise

OBJECTIVE: To select therapeutic exercise for a specific purpose

REFERENCE: *Sports Medicine*, Unit 9

DIRECTIONS: Use the section "Types of Exercise." Describe each category of exercise listed, and state its purpose.

1. Passive exercise:

   Purpose:

2. Active exercise:

   Purpose:

3. Active-assistive exercise:

   Purpose:

4. Muscle setting:

   Purpose:

5. Progressive resistive exercise:

   Purpose:

6. Isometric exercise:

   Purpose:

7. Stretching exercise:

   Purpose:

8. Functional exercise:

   Purpose:

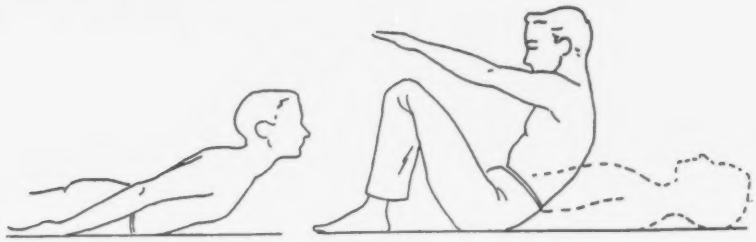
Worksheet 14
Sports Medicine

Range-of-Motion Exercises

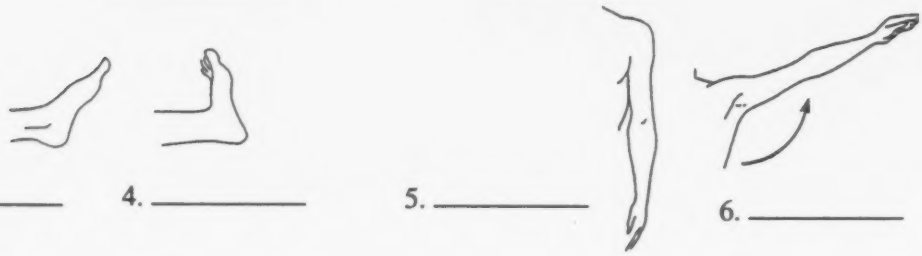
OBJECTIVE: To name the types of movement used in range-of-motion exercises

REFERENCE: *Sports Medicine*, Unit 3

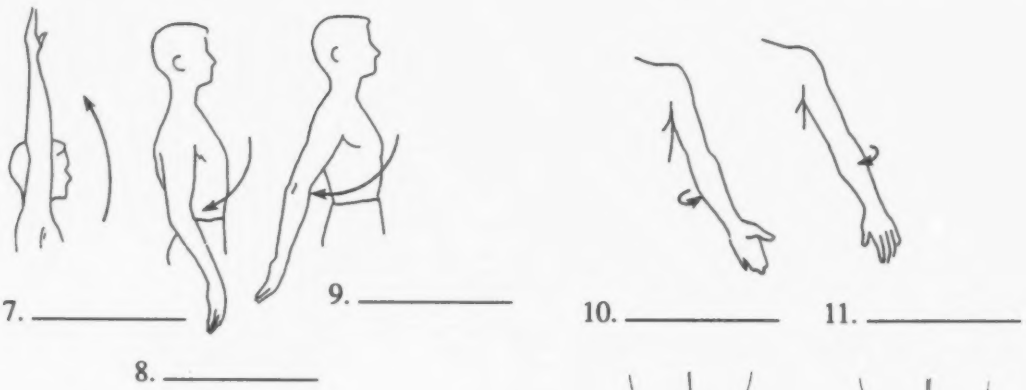
DIRECTIONS: Use figure 5 to identify these exercises.



1. _____ 2. _____

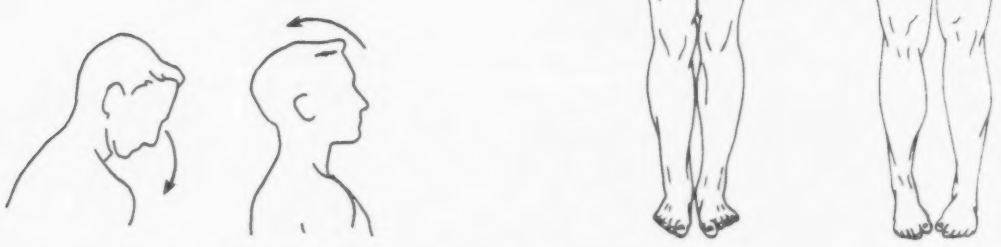


3. _____ 4. _____ 5. _____ 6. _____



7. _____ 9. _____ 10. _____ 11. _____

8. _____



12. _____ 13. _____ 14. _____ 15. _____

Worksheet 15
Sports Medicine

Exercise Programs

OBJECTIVE: To differentiate between types of exercise activities

REFERENCE: *Sports Medicine*, Unit 5

DIRECTIONS: Use the "Terms and Definitions" and the section "Types of Exercise" to answer these questions.

1. Define *kinesiology*.
2. Exercises for maintaining flexibility are divided into what two types?
3. Into what two groups can active exercise be divided?
4. What does *static* mean?
5. What does *kinetic* mean?
6. Give an example of a static active exercise.
7. Into what two divisions are kinetic exercises divided?
8. Name two groups into which passive exercises may be divided.
9. Explain how forced passive exercise differs from nonforced.
10. Point out the characteristics of aerobic exercise.
11. List examples of aerobic exercise.
12. Describe circuit training.
13. Where might circuits be found?
14. In your opinion, does circuit training build flexibility, strength, or endurance?
15. What is the purpose of circuit training?
16. Describe interval training.
17. What is the purpose of interval training?

Worksheet 16
Sports Medicine

Cardiac Rehabilitation

OBJECTIVE: To describe methods of evaluation used in cardiac rehabilitation

REFERENCE: *Sports Medicine,* Unit 6, Unit 7, and Unit 4

DIRECTIONS: Answers to questions 1-6 are found in Unit 6. The answer to question 7 is found in Unit 7. Discussion of circulatory system disorders is found in Unit 4, for question 8.

1. What should be done before any program of rehabilitation is begun?

2. List areas covered in a physical examination.

3. List areas for evaluation in overall fitness.

4. Name and describe two devices used for medical evaluation of cardiovascular fitness.

5. Name and describe two clinical methods used to determine the proportion of body fat to muscle.

6. In your opinion, why is this determination of body fat important?

7. What areas should be emphasized in exercise for older people?

8. Explain how these circulatory disorders affect the body.

   a. arteriosclerosis

   b. phlebitis

   c. cerebral hemorrhage

   d. embolism

   e. thrombus

   f. hypertension

   g. hypotension

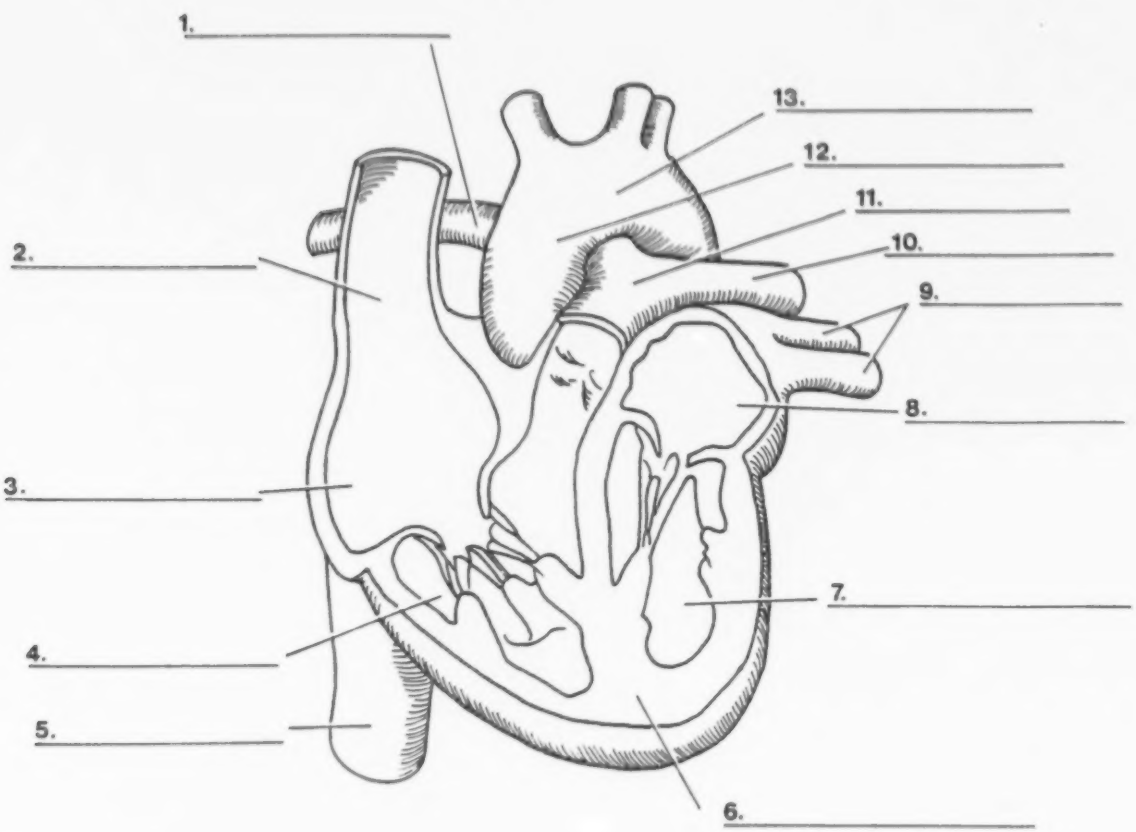
Worksheet 17
Sports Medicine

The Heart

OBJECTIVE: To recognize the parts of the heart and surrounding blood vessels

REFERENCE: *Sports Medicine*, Unit 4

DIRECTIONS: Label the parts of the heart and blood vessels shown in the drawing.



Worksheet 18
Sports Medicine

Vital Signs

OBJECTIVE: To describe procedures for obtaining each vital sign together with its normal value

REFERENCE: *Sports Medicine*, Unit 11

DIRECTIONS: Use Information Sheets 5, 6, 7, and 8, in Unit 11, to answer these questions.

1. What two important steps should be completed before taking any vital sign?
2. How much time should elapse after drinking an iced drink before an oral temperature can be recorded accurately?
3. By which end is the thermometer held?
4. For how long a period of time is oral temperature taken?
5. Name the artery most commonly used to record pulse.
6. For how long is pulse taken?
7. What can be noted, besides the actual rate, about a pulse when it is taken?
8. Describe how temperature, pulse, and respiration rate determinations are integrated to save time.
9. By what procedure is the respiration rate determined?
10. If you wished to determine your own respiration rate, how would you do this?
11. Describe how the stethoscope is prepared for use.
12. Explain how the site for taking blood pressure is determined.
13. With a blood pressure reading of 130/76, what is (a) the diastolic pressure and (b) the systolic pressure?
14. Explain why it is important to completely deflate the sphygmomanometer cuff as soon as the diastolic pressure is determined.
15. All four Information Sheets list paper and pencil as part of the equipment for obtaining each vital sign. Explain why these are necessary and important.

16. List the four vital signs by their abbreviations. Give the normal range for each. Be sure to record the unit of measure for each normal. Ask your instructor for help if you do not know these.

Worksheet 19
Sports Medicine

Evaluating Fitness Through Performance

OBJECTIVE: To use performance to evaluate motor skills

REFERENCE: *Sports Medicine*, Unit 5

DIRECTIONS: Answer these questions.

1. Write the meaning of these abbreviations:
   a. ROM

   b. EMG

2. What position is used as the point of reference for (a) the hand, (b) the foot, and (c) the thigh?

3. List four methods for measuring ROM.

4. Explain the simplest way to evaluate muscle action. How is this method limited?

5. List other ways to evaluate motor skills.

6. What is an electromyogram?

7. Describe two types of photographs obtained with a still camera which can be used in motion studies.

8. Tell how computers are used to evaluate motor skills.

Worksheet 20
Sports Medicine

Planning an Exercise Program

OBJECTIVE: To be familiar with factors used in planning exercise programs to improve performance

REFERENCE: *Sports Medicine*, Unit 5

DIRECTIONS: Answer these questions.

1. List four factors considered when planning an exercise program.
2. Describe how the type of activity is selected.
3. How is intensity judged?
4. What is the recommended intensity for exercise?
5. Compute the maximum heart rate and training heart rate for someone who is 21 years of age.
6. To what does the term VO_2 *max* refer?
7. Which area of fitness uses VO_2 as an indicator?
8. Name and explain three principles of kinesiology which can be applied to improve performance.

Worksheet 21
Sports Medicine

Training Attitudes and Fitness Programs

OBJECTIVE: To determine how attitude affects performance

REFERENCE: *Sports Medicine*, Unit 10

DIRECTIONS: Answer these questions.

1. Into what two phases can the psychology of performance be divided?

2. How does a negative attitude make itself known when someone is engaged in an exercise program?

3. List six steps to use in developing a positive attitude toward training.

4. What is commitment?

5. Describe three factors which influence a person's commitment to a training plan.

6. On what two factors does weight loss depend?

7. Besides overeating, what is the major cause of obesity?

8. Explain how stress can be beneficial in a training program.

9. When one becomes overstressed, what steps should one take?

10. Explain why it is necessary to set up separate programs for male and female athletes.

11. Define the term *biofeedback*.

12. Explain how these types of feedback are important in a training program.

    a. proprioception
    b. external feedback
    c. biofeedback

13. Explain how mental practice is used in training and competition.

14. List the characteristic stages through which an athlete may pass after a serious accident.

15. Describe the plan of action to be followed for the rehabilitation of an athlete following injury.

Worksheet 22
Sports Medicine

Diet and Body Weight

OBJECTIVE: To tell how to gain, loose, or maintain ideal body weight by utilizing good nutrition

REFERENCE: *Sports Medicine*, Unit 8

DIRECTIONS: Use the first part of the unit to answer the questions.

1. What is a calorie?

2. How many calories are required to maintain one pound of weight?

3. Determine how many calories you need per day to maintain your body weight.

4. How much above or below a person's ideal weight is considered abnormal?

5. List the four food groups with an example of each.

6. List the six nutrients.

7. What kind of carbohydrate is found in each of these foods?

   a. apple
   b. pasta
   c. maple syrup
   d. potato
   e. pecans
   f. banana bread

8. What kinds of fats are found in each of these foods?

   a. olive oil
   b. almonds
   c. cheese
   d. bacon
   e. peanut butter

9. What types of proteins are found in these foods?

   a. rice
   b. fish
   c. milk
   d. beans

10. Name two major types of micronutrients.

11. How are vitamins grouped?

12. What are minerals?

13. Explain what fiber is and where it comes from.

14. Differentiate between food additives and nutritional supplements added to food products.

Worksheet 23
Sports Medicine

Training and Diets

OBJECTIVE: To contrast special diets with balanced nutrition and to describe eating disorders

REFERENCE: *Sports Medicine*, Unit 8

DIRECTIONS: Use the last portion of the unit to answer the questions.

1. What are the recommended proportions for these nutrients?

   a. carbohydrates
   b. fats
   c. protein

2. Explain how an athlete can pack or load carbohydrates for sports competition.

3. Discuss the problems with these diets:

   a. high-protein, low-carbohydrate diet
   b. zero calorie diet
   c. high-carbohydrate, protein-poor diet
   d. single food diet

4. Describe the dietary goals of the Select Committee on Nutritional and Human Needs of the U.S. Senate.

5. Contrast the characteristics of someone who is underweight with those of someone who is obese.

6. Describe the appearance and symptoms of someone with anorexia nervosa.

7. Describe the appearance and symptoms of someone with bulimia.

Worksheet 24
Sports Medicine

Prevention of Injury

OBJECTIVE: To describe methods and equipment available for minimizing sports injuries

REFERENCE: *Sports Medicine*, Unit 7

DIRECTIONS: Answer the questions.

1. Who is ultimately responsible for the prevention of injuries in sports activities?

2. Discuss the importance of warmups as to

   a. physiology
   b. intensity
   c. specificity

3. State the principle of kinesiology which can be applied if a fall or blow is inevitable.

4. What factors should be considered in developing exercise plans for young people?

5. What factors should be considered in developing exercise plans for the older athlete?

6. What is a spotter?

7. What is the purpose of protective gear?

8. How often should a runner change to new shoes?

9. Why are protective adhesive wrappings place around joints and bones?

10. In the procedure for wrapping an ankle, where do the stirrups go?

11. Select one of the sports discussed in the unit. Describe injuries common to the sport. Suggest ways these can be prevented.

Worksheet 25
Sports Medicine

Screening Tests

OBJECTIVE: To understand how tests may be used to screen for fitness

REFERENCE: *Sports Medicine*, Unit 6

DIRECTIONS: Answer these questions.

1. Name the five areas used to evaluate fitness.
2. Explain what is meant by aerobic fitness.
3. What are the two most common tests used to determine aerobic fitness?
4. List two simple, inexpensive tests used to determine aerobic fitness.
5. Describe the one and one-half mile test.
6. Describe the three-minute step test.
7. Name the device used to determine muscle strength.
8. Describe other tests used to evaluate muscle endurance.
9. What type of fitness does the sitting toe-touch test measure?
10. List three tests used to determine body composition.
11. Explain how to perform the pinch test.

Worksheet 26
Sports Medicine

Basic Concepts of Wellness and Fitness

OBJECTIVE: To compare the basic concepts of health, wellness, and fitness

REFERENCE: *Sports Medicine*, Unit 1

DIRECTIONS: Answer the questions.

1. Define these terms:

   a. health
   b. fitness
   c. wellness

2. What organization is responsible for the present definition of health?

3. List the three components of health.

4. Describe a psychosomatic illness.

5. When all of our body systems and parts are balanced, how is that state described?

6. Compare a sedentary to an active lifestyle.

7. List the seven steps that the American Medical Association recommends for achieving fitness.

8. Explain reasons that regular exercise is important.

9. Explain what leisure time sports are.

10. With what areas is sports medicine concerned?

Worksheet 27
Sports Medicine

The Bill of Rights for the Athlete

OBJECTIVE: To point out practices players have the right to expect when they participate in sports

REFERENCE: *Sports Medicine*, Unit 1

DIRECTIONS: Use "The Bill of Rights for the Athlete" to answer the questions.

1. What group proposed this Bill of Rights?
2. What responsibilities does an athlete assume when participating in sports?
3. What are four things which an athlete should expect from a school to protect against sports injury?
4. Explain how good coaching protects the health and safety of the athlete.
5. What should an athlete expect from a school in the way of good health supervision in the sports program?

Worksheet 28
Sports Medicine

Caring for Supplies and the Work Area

OBJECTIVE: To clean and care for supplies and equipment properly

REFERENCES: Procedure Sheet 10: "Maintaining Sports Medicine Department"
Procedure Sheet 11: "Cleaning and Disinfecting the Work Area"

DIRECTIONS: Answer the questions using the Procedure Sheets.

1. Describe how movable equipment should be stored.
2. What should be checked concerning hydrotherapy equipment?
3. To whom is broken equipment reported in the place where you observe?
4. Is 3% Lysol used as a disinfectant where you observe? If not, tell what is used.
5. Describe, in general, how countertops are cleaned.
6. In the facility where you observe, is linen laundered and reused? Describe the policy for disposing of used linens.
7. Explain the local policy for disposal of contaminated items.

Worksheet 29
Sports Medicine

Records and Plans

OBJECTIVE: To describe records required by the sports medicine department

REFERENCE: *Sports Medicine*, Unit 6 and Unit 5

DIRECTIONS: Use Unit 6 to answer questions 1 through 6. Use Unit 5 for question 6 and for 7 through 10.

1. Which record will be required first by any sports medicine facility?
2. Name a medical specialty practitioner who can provide this record.
3. If a problem with the exercise plan arises later or a sports injury has occurred, which medical specialty practitioner should be consulted?
4. Look at the list of areas evaluated in the physical examination, and determine what type of reports would be included in the patient record.
5. Explain which area will be examined next.
6. List types of records that might be added to the patient's history from the performance or kinesthetic evaluation.
7. What is the next step after the kinesthetic evaluations are completed?
8. What is the purpose of the evaluation and development of an exercise plan?
9. Where could all the patient's data be collected for analysis and storage?
10. List the types of records required in the sports medicine facility where you observe.

Worksheet 30
Sports Medicine

Plans Leading to Discharge

OBJECTIVE: To plan for patient discharge from the sports medicine department of a hospital

REFERENCE: *Physical Therapy Aide*, Unit 5

DIRECTIONS: Use pp. 25-30 to locate answers to the questions.

1. Describe the information accumulated to form the patient history.
2. How is this data obtained?
3. Describe how the treatment plan is developed.
4. How is the treatment plan kept up-to-date?
5. Explain why the treatment plan is regularly evaluated.
6. Tell why a patient is discharged.
7. Describe the contents of a discharge note.
8. List correct procedures used for preparing records.
9. How are errors corrected?
10. The medical record is used as a means of exchanging information between members of the professional medical staff. To which area of medical ethics does this relate?

Worksheet 31
Sports Medicine

Organization and General Plan of the Body

OBJECTIVE: To locate cavities, anatomical planes, and directions on the body

REFERENCE: *Sports Medicine*, Unit 3

DIRECTIONS: Using the terms provided, label the figures.

Figure I:
cranial cavity
vertebrae
spinal cavity
thoracic cavity
diaphragm
abdominal cavity
pelvic cavity

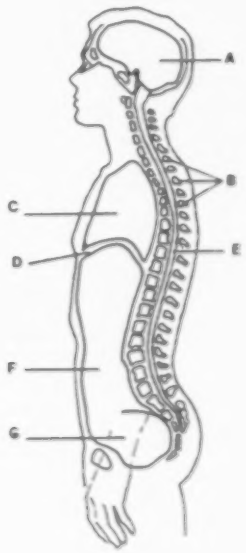


Figure II:
cranial
frontal plane
posterior or dorsal
anterior or ventral
caudal

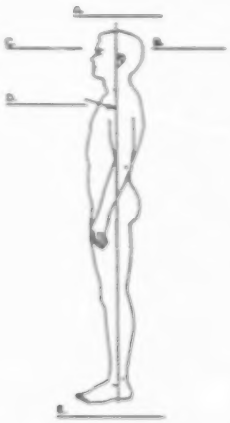
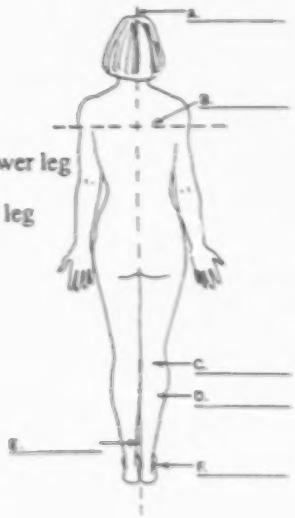


Figure III:
transverse plane
sagittal plane
proximal end of lower leg
medial surface
distal end of lower leg
lateral surface



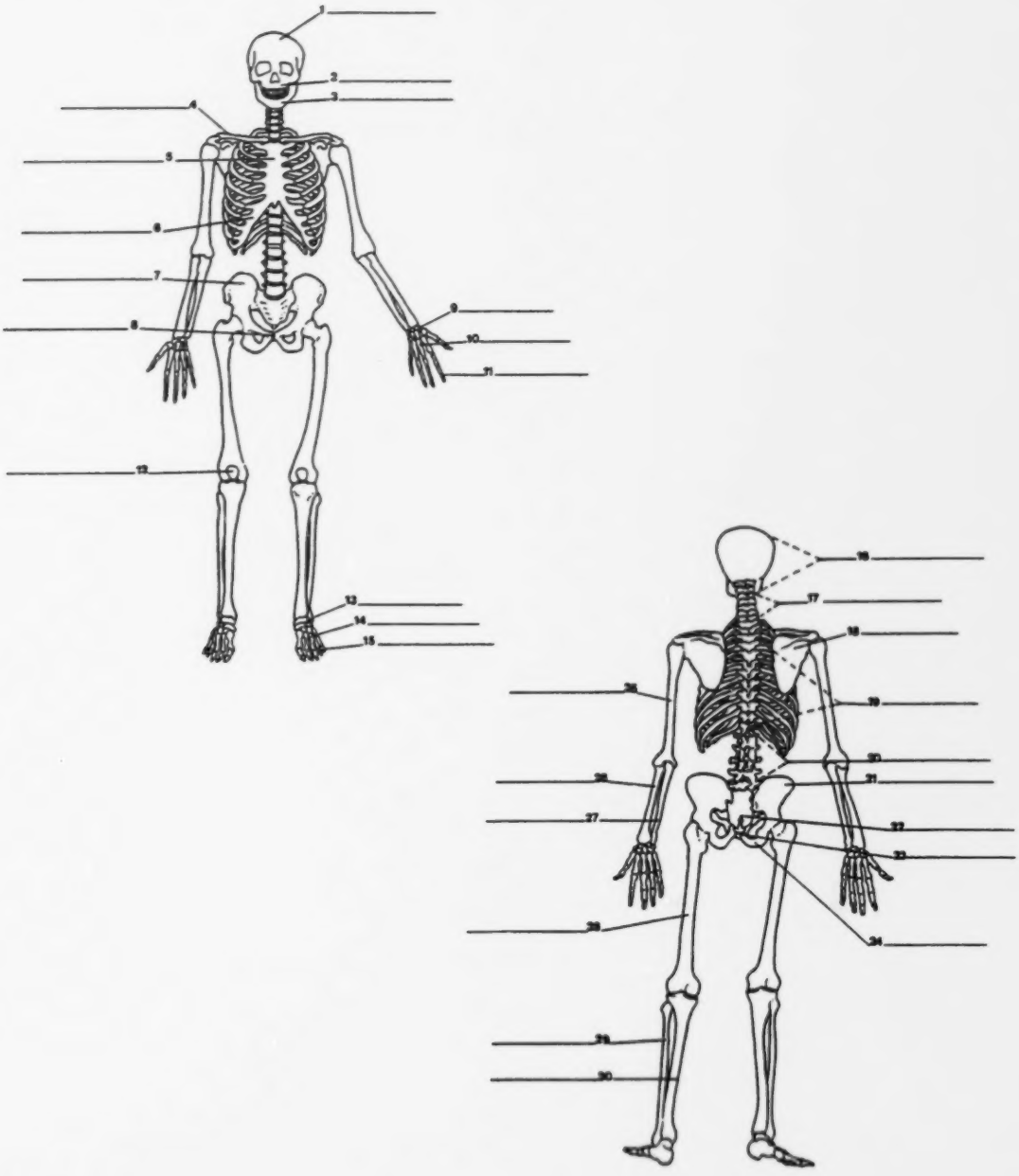
Worksheet 32
Sports Medicine

The Skeletal System

OBJECTIVE: To be able to identify the bones of the skeleton

REFERENCE: *Sports Medicine*, Unit 4

DIRECTIONS: Label the bones of the skeleton shown below.



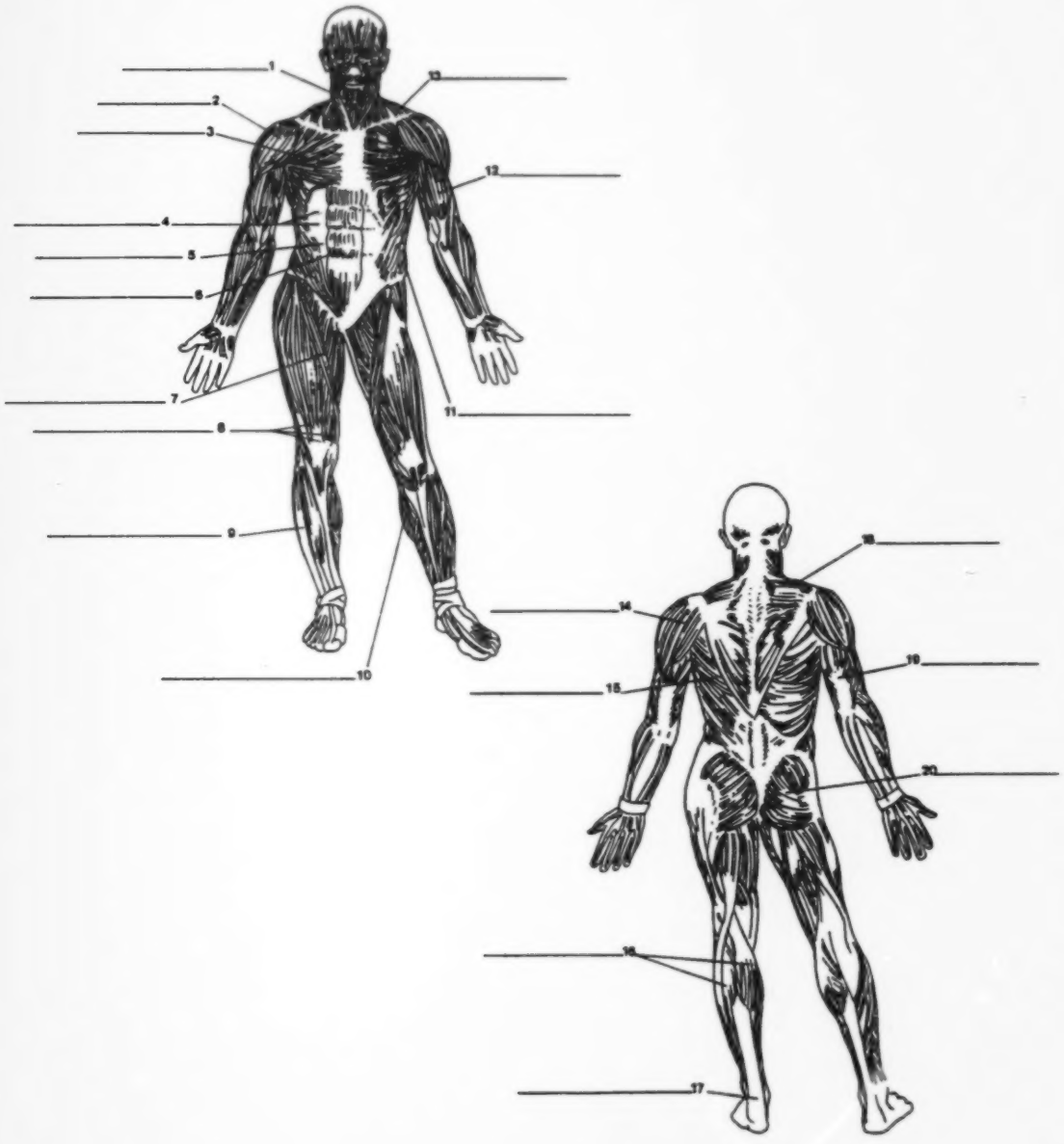
Worksheet 33
Sports Medicine

The Muscles

OBJECTIVE: To be able to identify the major muscles

REFERENCE: *Sports Medicine*, Unit 4

DIRECTIONS: Label the major muscles shown below.



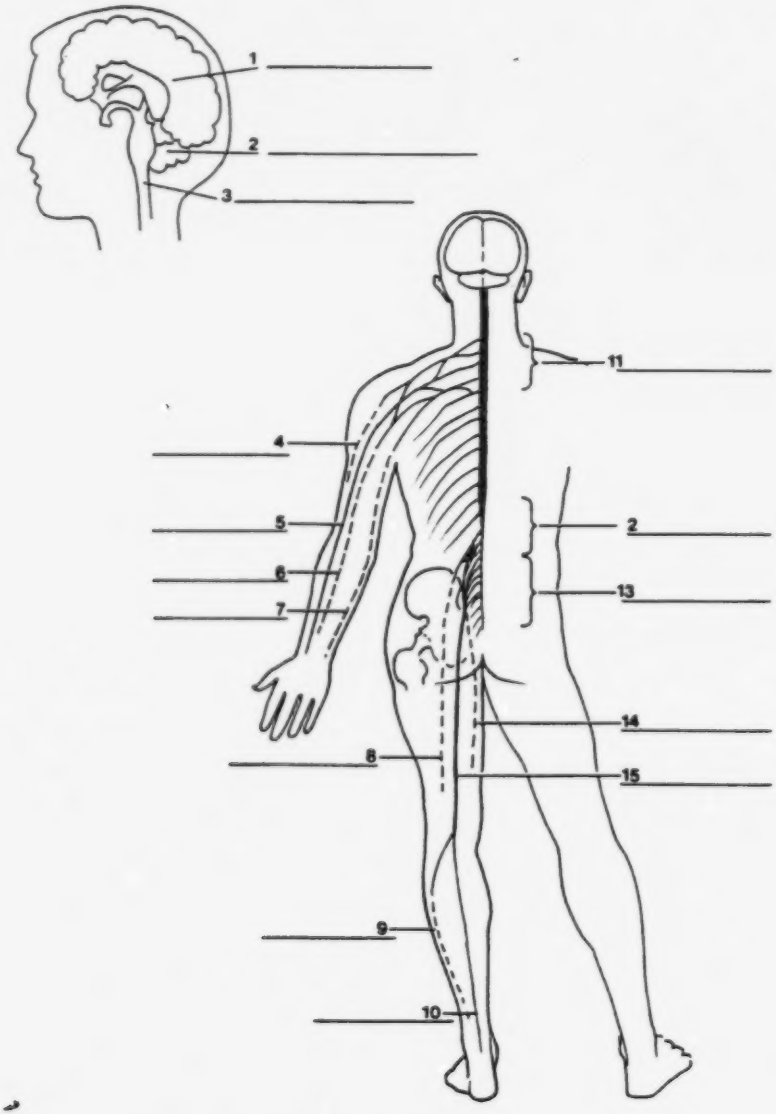
Worksheet 34
Sports Medicine

The Nervous System

OBJECTIVE: To be able to identify parts of the brain, the nerves, and plexuses shown below.

REFERENCE: *Sports Medicine,* Unit 4

DIRECTIONS: Label the structures shown below.



Career Resources

Sports Medicine

Alliance for Health, Physical Education, and Recreation
1201 16th Street
Washington, D.C. 20036

American College of Sports Medicine
P.O. Box 1440
Indianapolis, Indiana 46206-1440

Natioanl Athletic Trainers Association
P.O. Box 1865
Greenville, North Carolina 27834

Rehabilitation Counseling Association
Cary Building B-110
8136 Old Keene Mill Road
Springfield, Virginia 22152